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The School Physiology Journal

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MARY H. HUNT, EDITOR.

VOL. X. No. 1.
SEPTEMBER, 1900.

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School Physiology Journal

Vol. X. *BOSTON, SEPTEMBER, 1900.* *No. 1.*

SEPTEMBER.

O green and gold old Earth of ours, with azure overhung,
And looped with rainbows! grant us yet this grassy lap of thine—
We would be still thy children, through the shower and the shine!

JAMES WHITCOMB RILEY.

MIDSUMMER.

Green leaves, panting for joy with the great wind rushing through;
A burst of the sun from cloud and a sparkle on valley and hill,
Gold on the corn and red on the poppy, and on the rill
Silver, and over all white clouds afloat in the blue.

Swallows that dart, a lark unseen, innumerous song
Chirruped and twittered, a lowing of cows in the meadow grass,
Murmuring gnats, and bees that suck their honey and pass;
God is alive and at work in the world; we did it wrong.

HENRY C. BEECHING.

"I love to wander through the woodland hoary,
In the soft light of an autumnal day,
When summer gathers up her robes of glory,
And like a dream of beauty glides away."

"What music is in the air?
The song of a sweet-voiced bird,
Thrilled through with praise and prayer."

EARLY AUTUMN.

The world puts on its robes of glory now,
The very flowers are tinged with deeper dyes,
The waves are bluer, and the angels pitch
Their shining tents along the sunset skies.

The distant hills are crowned with purple mist,
The days are mellow, and the long, calm nights,
To wandering eyes, like weird magicians, show
The shifting splendors of the northern lights.

The generous earth spreads out her fruitful store,
And all the fields are decked with ripened sheaves;
While in the woods, at autumn's rustling step,
The maples blush through all their trembling leaves.

ALBERT LEIGHTON.

NATURE'S MUSIC.

The songs of nature never cease.
When winter's wind-songs die,
In come the birds, with hymns of peace,
And joy and love on high.

And when the summer day hath come,
The rustling of the trees
Is mingled with the tuneful hum
Of countless honey bees.

Then as the autumn greets the sight,
Her forces one and all unite
In heavenly harmonies.

JOHN KENDRICK BANGS.

LITTLE RED-RIDINGHOODS.

In scarlet clusters o'er the gray stone wall
The barberries lean in thin autumnal air:
Just when the fields and garden plots are bare,
And ere the green leaf takes the tint of fall,
They come, to make the eye a festival!

THOMAS BAILEY ALDRICH.

AUTUMN DAYS.

Earth is all in splendor dressed;
Queenly fair, she sits at rest,
While the deep delicious day
Dreams its happy life away.

MARGARET E. SANGSTER.

A MESSAGE FROM THE NINETEENTH CENTURY TO THE TWENTIETH.

SEPTEMBER has come, and with it again the open school and first school days whispering of hope and preparation for a future that is roseate with the glamour of youthful expectation. Whatever else this school year may bring, of one thing we may be sure, that not again in the life of many generations will the end of a school term be so momentously associated with past and future as the one now opening, for as it closes the greatest of all the centuries will end, its marvellous record finished, its story passed into history.

To look back upon human conditions one hundred years ago as contrasted with the present, is to see changes and improvements that the most sanguine optimist in 1800 could not have dreamed possible. These achievements are a prophecy for the future which constitutes an appeal. The gains of this century in discovery, invention, in science, in rapidity of transference of thought and matter, in education and intelligence, can not be simply for the material advancement of the human race. There is a manifest purpose running through all the checkered events of these wonderful years, and to that purpose these events in the long run are seen to become tributary. It is not merely that more money be accumulated and more pleasure come to the few that nature has been robbed of her secrets, that light has been enslaved, that steam and electricity have annihilated space and time, that wheels and fingers of steel have taken the place of human tissues in the world's industries.

These all point to and are tributary to the higher or soul development. Every discovery, every invention, has been in a way revolutionary, breaking down old bondages, and setting free old servitudes to ignorance.

It is self-evident that the public school free to all, and opening to all the printed page with its story of the past and present, has been an immense feeder in stimulating thought, in awaking curiosity, and in energizing invention and discovery. Thus the faithful teacher has had a part in this grand progress which it is our glorious privilege to live to behold.

Benjamin Franklin, at the close of his long useful life, said he sometimes wished it had been his destiny to live two or three centuries hence, not only that he might enjoy the advantages of the discoveries and inventions that he foresaw, but to have his curiosity satisfied in knowing what they were to be. This privilege denied him for the nineteenth century is ours. Discovery and invention have become so common as hardly to excite surprise, but our responsibility because of them is none the less.

A recent writer says, when this century opened "the curse of drink was threatening the health and morals of civilization," and although here and there men were striving to create a public sentiment against it, "drunkenness was the fashion." When the century was more than half gone the same writer said, "intemperance and pauperism still walk hand in hand through the world." Alcoholism has been a dark, black stream running through the years contemporaneous with the most marvellous progress in other respects that the world has ever known, swallowing countless thousands in its hopeless depths who otherwise might have helped to make this a still more wonderful century. With other narcotic habits which are its feeders, alcoholism is to-day, through its effects on health and character, the greatest menace that faces the civilization of the twentieth century.

Divine Providence in the interests of eternal progress is ever making use of the minds of men to search for the truth needed to meet human emergencies. This we call science.

During the past century science has thrown her searchlight into many a dark treasure cave and now she has come to rescue men from the alcohol blight. When this century opened all supposed the lighter liquors, as wine, beer and cider, safe drinks and so used them. Reformers urged total abstinence for the sake of the weaker brother who could not stop with a little, but still the ruin went on with no gleam of hope lighting its horrors. Laws forbidding the sale of what the people wanted to drink were difficult of enforcement under representative governments. But as the last quarter of this century was about to open, the scientific investigations of Dr. B. W. Richardson and others gave to the world the truth others before them had seen, namely, that alcohol like all narcotics when taken even in small quantities, as in the lighter liquors, is not the safe drink men had supposed, but instead has the power to create that uncontrollable and destructive appetite for more which has cost the world more lives, misery and waste than war, famine and pestilence combined.

Thus the cause of this evil was shown to be at the start popular misapprehension, ignorance as to the real character and effects of alcohol in small amounts as well as large. As long as this false notion prevailed drunkenness would prevail, consequently the remedy must be an educational one, as universal as the people, and applied in childhood and youth before desire for these destructive drinks is formed.

In all the world's history action has soon followed upon the heels of conviction, and never sooner than during the last twenty-five years, as though haste to make way for the coming grander era was in the air. In a little less than seven years from the date when Dr. Richardson, the most influential of the early

investigators, published his findings as to the nature and effects of alcohol, the first law was passed by one of the United States, making the study of the nature and effects of alcoholic drinks and other narcotics, in connection with physiology and hygiene, a required study for all pupils in all the public schools of that state. To-day this branch is a compulsory study for every child and youth in the public schools of our entire country, except in Georgia and Utah which are yet to be won. Fully 16,000,000 children of school age in our country alone are now covered by these laws.

At that time, in 1882, there was not in all the world such a school text-book as our laws now call for. Eighteen years later, the close of the last decade of the century finds nearly every school book publishing house in the land issuing yearly thousands and tens of thousands of good, well graded text-books that teach with other laws of hygiene the nature and effects of alcoholic drinks and other narcotics. These books, now being used by the coming men and women of this republic, are already shaping public opinion and habits for a new future on the alcohol question.

The first telegraphic message that ever throbbed over wires, regardless of distance, was sent in 1844. This message,

"What hath God wrought?"

is "the key-note of the nineteenth century."

The most perfect telegraph or telephone waits in silence concerning your most vital need until you send the message; so God's plan for the redemption through education of our nation and of other nations influenced by us waits your co-operation, school director, school committee, school superintendent and teacher. If you, officers in control of the school curriculum, make no place in the course of study for enough lessons to cover this branch through the years; if you do not provide for pupils' use, by selection or otherwise, text-books adapted to grade that contain the subjects the law requires taught; if you require no tests as to the pupils' proficiency in this as in other branches; if you, teacher, when all this is done, fail in your part, a coming generation will have just cause to point to such failure as disloyalty to a glorious opportunity to serve a higher civilization. If Edison, Fulton, Morse, Garrison, Phillips, Grant, Lincoln, our boys in blue who perished that ours might be an undivided nation, and that Cuba might be free, if all these and tens of thousands more who have dared and suffered for our free institutions had been unmindful of their heavenly visions and call to duty, dark indeed would be the now bright picture before us. Happily our history tells the story of few Benedict Arnolds, few recreants to duty. Free institutions beget the highest patriotism and loftiest loyalty to duty, when duty is seen as such.

Perhaps you ask: Are these text-books in hygiene and temperance accurate? Yes, so far as truth is yet ascertained they are, and we say this without the slightest fear of any one being able to disprove the statement. For years persons opposed, from reasons of their own, to total abstinence teaching have in vain charged inaccuracy upon these books, but when challenged to point out inaccuracies and present proof of the same they have failed as signally as did Professor Atwater, the data of whose experiments when printed showed that he had by so much proved alcohol to be a poison, as the books teach, and not a food.*

"But you ask for too much time and attention to be given this topic," I hear some one say. Not if you follow the standard which asks, as the minimum, for only one hundred and eighty, or as the maximum, two hundred and forty text-book lessons to be distributed through six years at the rate of thirty or forty lessons per year, with oral instruction for all pupils in primary classes. Only one-fifth of this study in classes below the high school refers to the temperance matter and only twenty pages in high school books. All the rest is physiology and general hygiene. As the subject is graded it is not in any sense a tiresome repetition but a progressive development that furnishes new and interesting phases of the subject.

The battle of Trafalgar next to Waterloo overthrew the Napoleonic power that threatened to make this century a military despotism. As the battle was waging on that fateful October morning in 1805, with the destiny of this century hanging in the balances, Lord Nelson hoisted at the masthead of his ship this signal:

"England expects every man to do his duty."

It was received with tremendous cheering by the whole fleet, cheers that turned to shouts of victory because every man did his duty.

Across the morning of the twentieth century we raise the signal:

For the temperance education of the children the world expects every man and every woman to do their duty.

As this signal meets your vision, school officers and teachers, I hear the answering cheers from hilltop and prairie, from ocean to ocean, from the lakes to the gulf, cheers that will turn to peans of victory as the twentieth century shall pay her tribute of gratitude to the men and women, now little children in your schools, who have dethroned alcohol.

MARY H. HUNT.

* "Appeal to Truth."

Primary Lessons.

FIRST YEAR.

GROWTH.

THE Anglo-Saxon race glories in its independence, in the ability of its people to get on by themselves. This has been strikingly true in America, where instead of settling down as beneficiaries of an existing state her people have had actually to evolve a government for themselves Children of such parents are natural workers in whatever direction their energies lead. It is as easy for them to tame a continent as for an Alexander to conquer a warhorse.

Our system of education strengthens this tendency to independence. In the school of to-day there is a strong movement toward athletics, a call for more gymnasiums, and a widespread demand for the teaching of hygiene.

The boy who has learned to hold his own on the football team, and to square his life by the rules of good health has scored his first point in the battle for success. The youth whose trained mind commands also a trained body is able henceforth to rely on his own efforts. He has become truly independent. Bearing in mind this object of education, it is plain that lessons in hygiene can not be begun too early in our schools if adapted to the comprehension of the pupil.

The subject of growth is a topic which commends itself to little children. They look with admiration upon bigger boys and girls and long for the time when they, too, shall be grown up. This is the moment to give them true ideals of physical development, and show them how to win for themselves the health and grace they admire in others.

WHAT GROWTH IS.

Russell Black always wanted to do what grown-up people did. When he was only five years old he used to dress up in his father's coat and call on his mother and sisters. One Sunday, when he had been to church, he put on his father's gloves and tall silk hat after the service and marched down the aisle gravely, shaking hands with all the people as he had seen the minister do. You can think how funny he looked.

When he was a little older he wanted to be a newsboy. "I guess I'm big enough to sell papers," he cried, "and I can holler as loud as anybody. Why can't I have some as well as the other boys?"

"You'll have to wait till you grow more," said his father, "before I can trust you out on the street alone. You might get run over; then I shouldn't have any boy."

"When will I grow?" asked Russell. "I wish I was big now. Shall I ever be as big as you?"

"I hope so; you are growing fast every day; you are taller than you were last summer; you weigh more; you are stronger, too, and can do many more things. Next year you will be larger still, and by and by if you keep well you will be a man."

GROWTH OF PLANTS.

A morning-glory vine grew in one corner of Mr. Black's garden. It had climbed nearly to the top of the carriage-house. Some of the leaves were broader than a man's hand.

Mr. Black picked one of the ripe, brown seed-vessels and sat down with Russell to examine it. He cut it open carefully with his knife and found three silky little nests inside, each with its two seeds. Next, he took off the outer skin from one of these seeds and within was a tiny green core, covered with a jelly-like substance.

Mr. Black spread out the core and told Russell to look at it through the hand-lens he took from his pocket.

"Why, it has two little bits of leaves," exclaimed the boy, "with a little tail to them."

"That is the root," said his father. "We have the whole plant wrapped up in this tiny seed — leaves, stem and root. Last spring all this large vine was packed away in just such a little seed; now it is taller than I am, and we can both sit in its shade.

"What else can you see which has grown this summer?"

Russell ran about the garden, looking at the flowers and plants as never before. Every few minutes he came back with a new discovery. The heliotrope, salvia, the tall cannas and hollyhocks, even the grass had all grown since the snow went away.

"The trees were here before, weren't they?" he asked. "Do they grow too?"

They walked under a big maple. "What do you see here?" asked Mr. Black.

"Oh, there's a little maple!" shouted Russell; "and here's another, and another, lots of them. Will they grow to be big trees? How do they?"

"Yes, the largest tree you can find was once a tiny seed. As soon as it began to grow it needed something to eat," said his father. "Its

first food was stored up in the seed itself. When this was gone the tiny roots struck down into the soil and drank in the water and other things the plant needed from the ground, and the leaves and stem stretched up into the light and air and got more food in that way. If it has been planted in the right kind of soil, if it gets good air and sunshine, and if nothing happens to injure it, by and by the maple seed will become a tree, or the morning-glory seed a tall plant.

GROWTH OF ANIMALS.

The next day Russell's two little cousins came to visit him. In the afternoon Mr. Black took them all into the country.

They ran about on the grass and picked daisies and golden-rod till their arms were full. Some butterflies flew overhead and Harold darted after them with his net.

"I've got him!" he called, as the others came running up. "Isn't he a beauty?"

"See what I've found!" said Mr. Black, holding up something white and fuzzy.

"It is a chrysalis," he explained, in answer to the children's questions. "Your lovely butterfly once lived in a home like this.

"He began life as a caterpillar which had hatched out of a tiny egg. He was hungry right away but there were tender leaves at hand to make him a good meal.

"When his clothes got too small he split them open and inside was a nice new suit, all ready to wear.

"One day he spun this web all about himself and went to sleep. We'll take it home and watch it. By and by it will burst open and our caterpillar will have grown into a butterfly with wings. Nobody can tell how he grows so beautiful. He eats and breathes and sleeps, and somehow the wonderful change takes place."

"Do caterpillars grow just like the morning-glory?" asked Russell.

"Not just the same," said his father. "They both need food to make them grow, but plants and trees have to stay in the same place and get their food from the air and soil. Caterpillars have legs to walk with and can go for what they need. They have mouths and stomachs too, which plants have not. What else can you think of that grows like the caterpillar, by going after its food?"

"I can holler as loud as anybody."

HELPS TO OUR GROWTH.

"I wonder which is the tallest of you little cousins," said Mr. Black. "Stand up by this tree and let me measure.

"Howard has a little the start, but Helen and Russell will soon catch up. Shall I tell you how to grow fast?"

"Oh, do," chorused the children. "Will we be grown up next summer?"

"Not quite so soon as that," laughed Mr. Black. "But I can promise you will be much larger than you are now.

"In the first place you must eat the right kind of food. Some things you are very fond of, like pickles and sweets, not only keep you from growing but make you cross and fretful. Green apples and any fruit that has begun to decay will probably make you sick and thus stop your growth for a time. The best foods for children, and other people too for that matter, are those which build up strong bone and muscle, like whole wheat bread, and butter, milk, oatmeal, meat, eggs, fresh ripe fruit, and vegetables."

"Don't we have to do anything but eat to make us grow?" asked Helen.

"Oh, yes, indeed," said her uncle. "Eating is only one part of growth. You need to run and play for another thing. That's why I brought you out here to-day. The city isn't a very good place for boys and girls. It doesn't give them room enough to grow.

"When we are at home you will have to do the next best thing—stay out in the garden all the time you can. The fresh air and sunshine will make you grow just as they do the flowers, and you must keep your blinds open, too, so they can get into your rooms.

"Which of these trees do you like better, the straight one or the crooked one?"

"Oh, the straight one," said Russell. "The other is a poor old thing."

"So do I, and I like to see tall, straight boys and girls better than crooked ones. That poor old tree got bent when it was young, and now it couldn't straighten up if it wanted to.

"If you always stand and sit erect while you are children you will grow up the same way, and it will help you grow, too.

"A time when you grow very fast is when you are asleep. Chickens go to rest as soon as

it is dark and you know how fast they grow. You ought to run and play enough in the daytime to be as tired as they at night. Then you would sleep soundly, and this rest would help your growth.

A HINDRANCE TO GROWTH.

"I can tell you one thing that will keep you small and weak. It is cigarettes. No boy or girl can smoke them or use any kind of tobacco, and then hope to be as tall and strong as if he had never touched them. They stop his growth and almost always ruin his health as well. Even men who wish to be truly sweet and clean let tobacco entirely alone."

PRACTICAL SUGGESTIONS.

Study with the children the growth of plants and animals familiar to them. Do this from outdoor life as far as possible, helping them to find out for themselves what conditions are most favorable to such growth. Visit with them the trees and flowers on the school-grounds. Teach the name of each and how to recognize it elsewhere. Have them look for tiny specimens of the same kind, and notice points of likeness and difference between the two.

"I've got him! Isn't he a beauty?"

On rainy days continue the work indoors by means of the blackboard. Draw some familiar plant in outline, showing roots, stalk, leaves, blossoms and fruit.

Soak a large bean in water. Split it open, and show through a hand lens the leaves and root. Help the children to find how this tiny plant is like the large drawing; how it is different; how it changes as it lives and grows.

Study a cat and kittens in the same way, from life if possible, otherwise from blackboard sketches. Ask how kittens are like the mother cat; how they are unlike. What can the cat do which the kittens can not?

Ask the children to name other animals which grow. Ask what we call a young horse, a young cow, sheep, fowl, duck, goose, dog, deer. How does each of these animals change as it grows older? How do we take care of a calf or colt to insure its health and growth?

From such a discussion pass to essentials to growth in children. Help the class to think how they should eat, drink, sleep, work and play to aid growth, also what they should refrain from doing to bring about the best results.

Tell them how much Russell wanted to be grown up and how his father told him he must live in order to get his wish.

Stories of strong, noble men and women who acquired their strength by right living, and who used it to help others and to do good in the world, will fill the minds of the children with noble thoughts, and both consciously and unconsciously they will strive to grow like their ideals.

MEMORY POINTS.

Young plants and animals grow.

Well children are always growing.

They grow taller and larger and able to do more. To grow well

WE MUST	WE MUST NOT
Run and play in the fresh air and sunshine.	Eat between meals.
Eat plenty of nourishing food.	Sit up late at night.
Go to bed early.	Sit or stand crookedly.
Sit and stand erect.	Smoke cigarettes or use tobacco in any form.
Be outdoors as much as possible.	Drink tea or coffee or anything which has alcohol in it.

Tobacco is exceedingly dangerous to the general vitality and vigor of the body.—D. S. Reynolds, M.D.

Alcohol is especially harmful to children for it interferes with their nutrition. It has never built a cell, nerve, muscle or tissue of the human body.—M. A. Gillette, M.D.

School Physiology Journal

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HENRIETTA AMELIA MIRICK, Assistant Editor.

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"Deep in the grasses at our feet
The tuneful crickets still sing as sweet
As in the depths of torrid June;
And o'er the dells and sleepy woods,
A reverent hush of stillness broods
As morning dreams into the noon."

EPOCH-MAKING EVENTS.

ONLY a superficial mind will attempt to explain God, but he explains himself in his own great purposes in the record of the years. During the months spanned by this volume of the JOURNAL, the completed nineteenth century will take its place among those of the past, hence a brief résumé of the great events which have marked its rolling years can not fail to be of interest and profit to our readers. We propose to present some of these in each number of the JOURNAL during the coming year under the title of "Nineteenth Century Notes." This month we glance at the opening years of the century chaotic with wars and tumults but brightened by the dawning ideas of liberty.

EDUCATION INFLUENCES ACTION.

EDUCATION implies not only the acquisition of knowledge, but the power to convert it into practical living. No one doubts that instruction in language influences expression, that in arithmetic it guides action in relation to numbers. The same principle holds true in teaching hygiene. To assert that education in the laws of health, including those which relate to the use of alcoholic drinks and other narcotics, will have no influence in securing obedience to such laws is to deny a fundamental principle of civilization. Such education will not always insure obedience to health laws but it invariably tends in that direction, for God has so made the mind that it must feel the power of truth and be influenced by it, although it may sometimes resist.

The established policy of this republic is that the state in self-protection must provide such education for its succeeding generations as will tend to their highest physical, mental and moral well-being. If this policy is a mistake, if teaching the young the advantages of following the right and the consequences of following the wrong is a failure in method, we must shut up our schools and churches and return to barbarism, for education alone in its broadest sense differentiates the civilized man from the savage.

Long ago the Master gave a rule which has never been gainsaid for testing the success or failure of any plan, "By their fruits ye shall know them." What of the study of scientific temperance when examined by the searchlight of this proposition?

In the opinion of two professors in leading medical colleges, as stated in the "Journal of the American Medical Association":

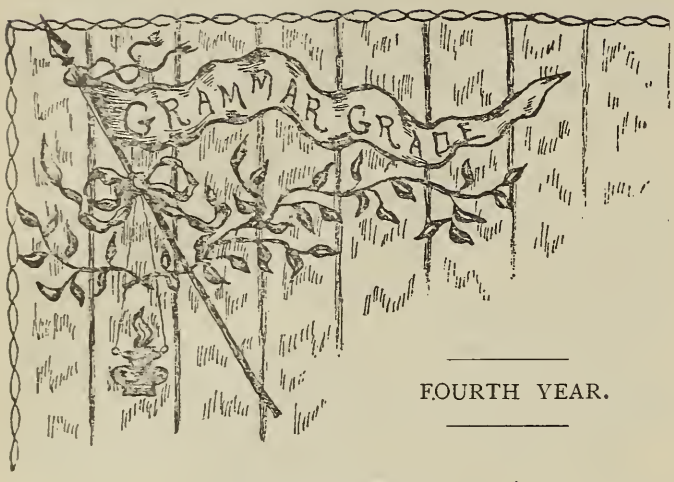
"The people of the present day exhibit more intelligent interest in the discussion of sanitary problems, both public and private, than any preceding generation; and this interest seems to be steadily increasing. It is a most encouraging sign of our advance in civilization and a favorable evidence of our culture at this end of the century, that so large a proportion of the community is demanding exact information as to the positive and economic value of the various alimentary substances offered to man as his daily food.

"As to the cause of this gratifying interest, a large share, in our opinion, in this country may with justice be attributed to the systematic study of physiology and hygiene, including the scientific temperance instruction which for some years has been a part of the regular course of study for all pupils in our public schools."

It is a significant fact that this testimony comes from Pennsylvania which has had longest in force one of the best laws requiring this systematic study of temperance physiology. Such testimony from competent observers could be indefinitely multiplied showing that the adequacy of this plan for insuring a sober and intelligent nation through the systematic training of its children has been abundantly proved. Surely we may take courage and go forward.

A NEW CORRESPONDENCE SCHOOL.

Announcement is made of the organization of the Correspondence School of Highland Park College, Des Moines, Iowa, with Dr. Henry Sabin, ex-State Superintendent of Public Instruction, as conductor. Educators who have followed Dr. Sabin's long and useful career as a public school man will be interested in this new enterprise. His splendid and lasting work already done for education in Iowa, and which is comparable to that accomplished by Horace Mann in Massachusetts, gives bright promise for the future. Of Dr. Sabin's fitness for carrying out his present plans there can be no doubt, and his many friends in other states and sections of the country will watch their development with interest and sympathy.



FOURTH YEAR.

THE TEETH.

AN Arabian legend relates that Mohammed once asked what had been done with a valuable camel.

"We have turned him loose and commended him to Allah," was the pious reply.

"Tether him," said the prophet, "and then commend him to Allah."

The same practical wisdom should be exercised in caring for the teeth if we wish to keep them. A dentist of wide experience asserts that while but one person in a hundred has good teeth, ninety-nine persons in a hundred might have them with proper attention.

The appearance of the teeth has much to do with the good looks and attractiveness of the individual, and on this ground alone there is abundant reason for giving them the care they need, but more than beauty is at stake. The teeth play an important part in digestion, thus directly affecting the health. If the food is not thoroughly masticated in the mouth, stomach and intestinal digestion will be delayed and often seriously impaired.

Fine work demands the best of tools, and in order that the teeth may be able to meet the demands made upon them they must be kept in perfect condition. Urge upon your pupils the importance of having their teeth examined twice a year by some competent dentist. This will mean a saving in money as well as in the teeth themselves. Study with your class the structure of the teeth. Notice how perfectly they are adapted to their work in the different animals and in man. Find from text-books and observation how best to care for them to insure their preservation even into old age. Show the desirability from every point of view of sound, white, even teeth, and the folly of destroying this perfection by neglect or by the use of tobacco.

SHAPE OF THE TEETH.

Write on the board the names of animals familiar to the class, such as the horse, tiger, sheep, cat, squirrel, pig, cow, hen. Find what your pupils know of the food of these animals. Which live mostly on flesh? on nuts? on grass?

A carpenter needs different tools from a blacksmith because he has very different work to do. Would we expect to find the teeth of all these animals alike or different? Why? Ask each pupil to choose a single animal from the black-board list and find out for himself:

The kind of food it lives on.
The kind of teeth it has.
How these teeth are fitted for the work they have to do.

Many interesting facts will be brought out by such study; why the cow has no upper biting teeth; why a squirrel's teeth do not wear out when he uses them to gnaw nuts and other very hard substances; why the hen has no teeth at all; what takes the place of teeth in the toad; in the beetle; the fly; the oyster. Encourage the pupils to carry this study as far as time will allow, learning similar facts in regard to less well known animals, such as the elephant, camel, kangaroo, shark, whale, eagle.

The class are now ready for intelligent study of the human teeth. Have ready a complete set of false teeth, also detached teeth of various kinds. What differences in size and shape are noticed in the upper teeth of a grown person? in the lower? Have the class make drawings of the different shapes and explain how each is fastened to its place in the jaw. Ask what teeth they would use in biting an apple, then request them to find from their text-books the name, incisors or cutters, for such teeth. How many of these are there in each jaw?

How does the tooth next the incisors on each jaw differ from these? What are they used for? After the class have found the name canine, belonging to a dog, for these teeth, explain that they are called thus because they are shaped something like the long, sharp teeth which a dog uses for tearing. In the same way study the four bicuspids on each jaw, then the three molars, learning the name and shape of each. Why is the name wisdom-teeth given to the molars farthest back in the mouth? How many teeth in all?

Ask the class how a child's mouth compares in size with that of a grown person. How do his teeth differ in size, kind and number? Have a drawing of the twenty milk-teeth placed on the board and compare with that of the permanent set.

STRUCTURE OF THE TEETH.

Next, examine with the class the teeth as to structure. What does the outside look like? How does it feel to the touch. Find whether it hurts to touch the outside of a tooth. Why is it so painful when the dentist fills the cavity in the inside?

Obtain from the butcher a large tooth from

some animal. Have this sawed through lengthwise. Pass it about for examination, then put an enlarged drawing of the same on the board, showing the different parts, crown, neck and roots, also the different materials of which the tooth is composed, enamel, dentine and cement, and the pulp cavity in which are found the nerves and blood-vessels.

Have the class find which part of the tooth can be seen in the mouth; which part is out of sight; why the neck of the tooth is so-called; which is the hardest part of the tooth; which part is much like bone; the use of the cement, the enamel, the nerves, blood-vessels. Where do we get the ivory of commerce? What use does the animal on which it grows make of it?

WORK OF THE TEETH.

Æsop's fable of the hands and mouth which refused to keep on providing food for the stomach to enjoy will form a good introduction to this topic. Tell it to the class as preliminary to the subject of mouth digestion of foods.

Help all to get a true idea of the close relation which exists between the different parts of the body; that the eyes, for instance, do not see merely for their own pleasure but that the whole person may either enjoy or turn away from what is seen. The legs can not run to an object unless the rest of the body goes too; no more can the mouth or stomach keep for themselves the food taken to them; it is meant for every part as well.

Ask the class at this point to think of the best dinner they ever ate. Who prepared it?

Tell them that some cooks get as much as $10,000 a year because they understand their business thoroughly and know how to prepare food to the best possible advantage.

We may think of the teeth as something like cooks, because they take the food we eat and make it ready to be digested so that every part of the body can get what it needs.

Have the pupils examine the set of false teeth brought into class and decide from their shape what kinds of food man is fitted to live on. Why are the teeth arranged in two rows facing each other? How do the jaws move when we bite our food? When we chew it? Why should food be chewed very fine before being swallowed?

Put the last question on the board. Before calling for answers, discuss again with the class the real object of eating. Do we take food into the mouth and stomach just because we enjoy its taste, or because every part of the body is continually wearing out and must be repaired? Get from the druggist a mixture of hydrochloric acid and pepsin (pepsin 20 gm.; HCl 12cc.; H_2O 2,000cc.) which represents the digestive fluid of the stomach. Place in two bottles. In the first put a chunk of lean meat as large as could well be swallowed, and in the other finely minced meat. Keep both in a warm place (99°F). Have the class notice the ease with which the meat in the second bottle is digested, and from this experiment decide as to the necessity of thoroughly chewing food before swallowing it.

The teeth perform other important functions besides helping in the digestion of food. Ask the class why the jaws of an old person who has lost his teeth look small and shrunken. How do the teeth help to give form and expression to the face? How do they aid one's looks.

Call attention to the way in which the teeth help in talking and singing distinctly. Why is it easier for a baby to learn to talk after his teeth begin to come? Why is it difficult to understand a person who has few or defective teeth?

CARE OF THE TEETH.

No feature is more attractive than beautiful teeth, and no other is easier to obtain. The first essential is thorough cleanliness. Impress this clearly on the pupils by every illustration at your command. Have them take the temperature of the mouth with a small thermometer. It will surprise them to find what a warm place it is. Moisten bits of meat and keep at the same temperature as the mouth. How long before a bad odor is noticeable? Have the class deduce from this experiment one reason for the early decay of the teeth, also for the disagreeable odor such teeth often have. How often should the teeth be cleaned to prevent such results?

Using the set of false teeth as a model, illustrate the proper method of brushing the teeth. Let the class decide why it is not a good plan to brush across the teeth; why a rotary motion is necessary; how the back of the teeth can best be cleaned; how often the teeth need brushing to insure cleanliness.

Refer to the perpendicular section of the tooth already examined, and from it show the relative thickness of the enamel and the bony layer. How would cracking nuts or biting off stout thread with the teeth be likely to affect this thin outside layer? Does it grow again when once broken or destroyed. Pour cold water into a glass tube. Empty, and refill immediately with very hot water. Judging from this experiment what would be the effect on the enamel of taking into the mouth very hot and cold food or drinks?

Explain how the enamel may be roughened or broken by the use of metal toothpicks or any hard substance except in the hands of a skilled dentist. Show how silk floss may be used instead to remove particles of food which have lodged between the teeth.

Develop the idea that the teeth need exercise just as much as other parts of the body. We run and swim and row and play ball to develop different muscles of the body. So we must use the teeth in thoroughly chewing our food, to give them health and strength. Crusts of bread, crackers, and similar foods requiring much chewing are excellent for the teeth.

Help the class to tabulate the causes of poor teeth, so far as they can ascertain them from observation and from study of their text-books, then to suggest remedies for each defect.

For instance, many teeth are brittle and break or crumble easily. To guard against this trouble, they should find what the teeth are made of, and what kinds of food will help to make them stronger.

Other teeth are defective because the general health is poor or because the person eats too many sweets, or because he neglects to keep them clean, or because he has used tobacco.

Take up the last point in detail. Have the class find why the teeth of the tobacco-user are seldom white or perfect; what there is in this weed which injures the teeth; how the use of tobacco is opposed to that cleanliness which is so necessary to the preservation of the teeth; how tobacco affects the mouth and throat, and especially their glands.

Put on the board the famous saying of Don Quixote, "A tooth is worth more than a diamond," and ask if any one can afford to injure such a priceless possession.

AUTHORITATIVE QUOTATIONS.

NEED OF CLEANLINESS.

A large proportion of the teeth consists of carbonate of calcium which readily dissolves in weak acids; and decomposing food particles lodged between the teeth develop acids which eat away the tooth slowly but surely. Hence all food particles should be carefully removed from between the teeth, and as this can not always be effected completely it is important to brush the teeth with alkaline substances which will neutralize and render harmless any acid.

—H. Newell Martin, M.D., F.R.S.

THE TEETH NEED EXERCISE.

It is noticeable that among civilized nations the teeth are becoming less sound and vigorous. This is partly due to the fact that with the use of cooked food, food already ground and softened, there is less use for the teeth, and so according to the law of evolution, they, as superfluous organs, are tending to disappear.

—H. F. Hewes, M.D.

WHEN TO VISIT THE DENTIST.

All persons, old and young, should have their teeth examined once every six months by a competent dentist. Decay will be present and tartar forming which nothing but a thorough examination will reveal. Professional service rendered in time means high class work, less pain, and great economy.—H. G. Vorhies, D.D.S.

HOW TOBACCO INJURES THE TEETH.

Tobacco injures the enamel, discolors the teeth, debilitates the gums, and taints the breath.—John Cutter, M.D.

TOBACCO IRRITATES THE SALIVARY GLANDS.

The excessive secretion of saliva induced by the use of tobacco is followed by dryness of the mouth and throat, a natural result of the overwork forced upon the salivary glands. This dryness leads in many persons to the drinking of alcoholic beverages.—Roger S. Tracy, M.D.

ALCOHOL DRIES UP THE MOUTH AND THROAT.

A noted French physiologist, M. Lancereaux, has found that the use of alcoholic drinks produces a softening of the salivary glands, together with other changes in the tissue composing them. This causes alterations in the saliva itself and accounts for the dryness of the mouth so common among persons addicted to the use of alcohol.

NOT SO STUPID.

Minister—"Well, Johnny, and how are you getting on at the school?"

Johnny—"I've left the schule noo, sir, I'm thirteen past, ye ken."

Minister (impressively)—"Oh, but you know, Johnny, I didn't finish my education till I was twenty-three."

Johnny (coldly)—"Did ye no', sir? Ye mun ha' been an awfu' thickhead."

—[Boston Journal.

LOST, THE SUMMER.

Where has the summer gone?
She was here just a minute ago,
With roses and daisies
To whisper her praises—
And every one loved her so!

Has any one seen her about?
She must have gone off in the night!
And she took the best flowers
And the happiest hours,
And asked no one's leave for her flight.

Have you noticed her steps in the grass?
The garden looks red where she went;
By the side of the hedge,
There's a goldenrod edge,
And the rose-vines are withered and bent.

Don't you fear she is sorry she went?
It seems but a minute since May!
I'm scarcely half through
What I wanted to do;
If she only had waited a day!

—[Exchange.

THE IDEAL.

At the inmost core of thy being
I am a burning fire,
From thine own altar—flame kindled,
In the hour when souls aspire;
For know that men's prayer shall be answered
And guard thy spirit's desire.

That which thou wouldst be thou must be,
That which thou shalt be thou art;
As the oak, astir in the acorn,
The dull earth rendeth apart,
So thou, the seed of thy longing
That breaketh and waketh the heart.

KATHERINE LEE BATES.

SCIENTIFIC TEMPERANCE FROM A GERMAN POINT OF VIEW.

SO great a change has recently taken place in the temperance problem of continental Europe that the time is past when it could be claimed that alcoholic drinks, particularly in the form of beer and the lighter wines, had undisputed possession of the field. It is significant that in bringing about this change great prominence is due to German specialists and investigators.

The movement is not specifically religious, nor can we look to preachers and women as the leaders. The most powerful and most uncompromising German advocates of temperance are scientists and physicians. Startled by the fearful havoc made by alcoholism as revealed by statistics, they have set to work patiently to get at the exact causes of crime, insanity, suicide, poverty, degradation, ruined homes, and wretched lives. The investigation of these causes has been pursued with the utmost diligence by scholars whose calling brought them into contact with the various phases of social pathology, such as medical experts and specialists, professors of physiology, directors of hospitals, insane asylums, and prisons. The facts at the command of every investigator are made the basis of the inductions according to the scientific method. These friends of temperance have no thought of forestalling or prejudging scientific investigation which is their weapon and strength. Legitimate scientific results from every quarter are hailed with joy as valuable aids in promoting the cause of humanity. This scientific temperance is unconditionally in favor of total abstinence and directs its most powerful attacks against the dangers connected with moderate drinking.

"That orbéd maiden,
With white fire laden,
Whom mortals call the moon"

Some idea of this important movement can be formed from the statements of the leaders. Only a few, however, can be given as samples.

J. E. Colla, physician in Finkenwolde, Germany, says:

"The treatment of the alcohol problem in medical literature has recently undergone a complete revolution. Until a few years ago only isolated physicians ventured to attack the position of alcohol deemed so secure in medical practice; but now the literature directed against alcohol is very extensive, while the voices defending its use in this or that department are very scarce."

R. Demme, medical doctor, director of the Children's Hospital in Bern, and professor in the University of that city, says:

"From the standpoint of the hygiene of the people we must oppose with the utmost energy the use of alcohol as a beverage for children." Its use is pronounced physically and mentally an injury.

G. von Bunge is a medical doctor and professor of physiological chemistry in Basle. His scientific work on the specialty of his professorship has given him an international reputation. On the basis of this specialty he discusses the alcohol problem with the calmness and con-

vincing logic of science. The supposed inspiration attributed to spirituous liquors he attributes to a paralysis of the brain. Alcohol so stupefies that the drinker does not realize his actual condition but imagines himself something very different. "His self-satisfaction increases in proportion as he becomes unable to criticise himself." Alcoholic drinks produce inanity, mental vacuity, stupidity, and conceit. Professor Bunge is not a total abstainer for ascetic reasons.

"I affirm that a man who abstains totally from the use of alcoholic drinks does not deny himself anything; he gains in the blessing and joy of life. No drunkard," he says, "was ever saved by the resolution to become a moderate drinker. Salvation consists in avoiding the first glass. The moderate drinker tempts others. It is not the drunkards who lead men astray; they rather have the great merit of deterring others by their example. Those who lead others into temptation are the moderate drinkers. And so long as this temptation continues there will be no end to intemperance and its results, namely, disease, insanity, and crime. Whoever fails to recognize this fact does not understand the history of the warfare against intemperance."

Those who believe Germany but little afflicted with the curse of intemperance should read the statements of this careful investigator:

"Every three years the cost of the beer consumed in the German Empire equals the five billions received from France as a war indemnity, and besides, it swallows every year per inhabitant more whiskey than Russia which is celebrated for its consumption of this article. Year after year there is a frightful increase in Germany in the number of persons who wander into hospitals as sufferers from chronic alcoholism and delirium tremens. Their number in 1885 was 11,974. Consider also that only the smallest number of drunkards enter the hospitals."

He specially emphasizes the hereditary effects of intemperance.

"There run about in Germany hundreds of thousands of children with the germ of intemperance and the inclination to crime, whose heredity also involves disease of the nerves, epilepsy and imbecility."

Dr. A. Fick, professor of physiology in the University of Würzburg, is enthusiastic in respect to the new temperance crusade.

"The battle against alcohol is the most significant phenomenon of our age; more important than all political action, wars, and treaties of peace."

He declares that this battle is directed against wine and beer, as well as against stronger drinks.

Dr. A. Forel, professor of psychiatry in the University of Zürich, and director of an insane asylum near that city, declares that a healthful spirituous liquor does not exist, but that there are only degrees in the danger of alcoholic beverages.

"Together with the worship of the golden calf, alcohol is the real devil of the nineteenth century. . . . When the moderate consumption of alcohol becomes the habit of a people, it leads with mathematical certainty to intemperance, and thus to a gradual poisoning and slow unconscious physical and moral degeneration of a nation."

Leipsic has one of the finest universities of Europe and is a scientific as well as literary and musical centre. P. J. Möbius, a physician who makes a specialty of nervous diseases, and is a teacher in the university, gives this testimony:

"In truth, all the talk about the nourishing quality, the invigorating power, and the hygienic effect of alcohol is nothing but a cloak with which the drinker tries to cover his appetite. No man would care about the insignificant nourishing property claimed for alcohol if there were no pleasure in drinking. . . . The people must be enlightened in order to learn that the old pretence that alcohol nourishes, warms, strengthens, aids digestion, cures, amounts to nothing. . . . Only recently has a correct knowledge of the effect of alcohol been gained, and this knowledge has not yet been learned by all physicians. In our day, however, every physician ought to be ashamed to recommend a medicinal wine (for there is no medicinal wine), or to prescribe wine for the strengthening of children. Those who advise that in case of influenza, etc., liquor be taken know not what they do."

Many similar statements of eminent scholars and specialists might be quoted to indicate the strength of the reaction against the drinking habits of continental Europe. Great stress is naturally laid on the instruction of the young, respecting the physical and ethical effects of alcohol.

An association of German physicians has been organized on the basis of total abstinence. At a large meeting held by them in Munich, Professor Bunge stated that everywhere the young are beginning to enter the total abstinence movement. The eminent Doctor and Professor Pettenkofer, who is called "the creator of scientific hygiene," addressed the assembly on the importance of total abstinence and of fighting alcoholism. German teachers have likewise formed a total abstinence association and publish a journal entitled "Abstinence." — J. H. W. Stuckenberg, LL.D., Cambridge, Mass.

AN AUTUMN MORNING.

The frost's agleam in the mellow dawn,
And the spider's nets are on the lawn.
And deep in filmy robes of mist
The hills and the silent woodlands lie,
And anon, as the sun comes up the sky
The gray clouds turn to amethyst.

EDWARD WILBUR MASON.

BOOK NOTICES.

PYLE'S PERSONAL HYGIENE: edited by Walter L. Pyle, A. M., M.D. W. B. Saunders & Co., Philadelphia, Pa., publishers. Price, $1.50.

A distinguishing feature in this manual of hygiene is its compilation of treatises by seven well-known American physicians, upon topics to which each has given special study. The work is eminently popular in its avoidance of technical terms, and the simplicity and ease with which important facts are set forth. The ear, eye, brain and nervous system, the skin, the respiratory and digestive apparatus are among the subjects treated. In each case description of the organ is followed by directions for its care and the prevention of disorders most commonly affecting it. While not agreeing with all of the conclusions embodied, the book contains much valuable matter which we are glad to commend. The principles of hygienic living can not be too widely known, and he who helps to bring them before the public is hastening the advent of healthier generations.

A GOOD VOCABULARY.— A good vocabulary is acquired by reading good books, as well as by hearing the talk of those who express themselves in the speech of educated people. Thought lies back of speech, and the more subjects interest us the more command of language we shall have in which to describe them. They who read scientific books will have a grasp of scientific terms. They who discriminate nicely and use the very best word to say what they have in their minds will consult a dictionary and see what are the similarities or the contrasts of certain words; will choose, as among gems, the flawless ruby or crystal; will not be satisfied except with the exact word which can express precisely the meaning they wish to convey. The reading of good authors lifts our vocabulary from meanness and meagreness to nobility and splendor, enriches our speech with words which are like a beautiful embroidery on the garment of daily life, and furnishes us with allusions, quotations and phrases which are picturesque, apposite or convenient for illustration.— MARGARET E. SANGSTER, in September Ladies' Home Journal.

POWER OF THE TOBACCO HABIT.

The brochure bearing this title which comes to our desk will be warmly welcomed by teachers and others who must fight the growing use of cigarettes among their pupils, and who wish detailed information in regard to the effects of this narcotic as well as convincing arguments against its use. Mrs. Angstman, the author, has definitely met this need, and the forceful way in which she handles the subject commends itself to the practical student. Copies may be ordered through this office, at 20 cents each, 6 for $1.00.

A SEVERE REMEDY.

A little boy came home after the children had had their eyes examined, with the following note, duly signed by the principal: —

"Mr. Judkins: Dear sir,— Your son shows decided indications of astigmatism, and his case is one that should be attended to without delay."

The father sent the following answer: —

"Mr. Kershaw: Dear sir,—Whip it out of him. Yours truly, Hiram Judkins."—[Detroit Free Press.

CONFUSING.— Druggist: "Pills, my dear?"
Little girl: "Yes, please, sir."
Druggist: "Anti-bilious?"
Little girl: "No. Uncle is."

The collegiate and educational articles that appear regularly in *The Delineator*, from the pen of Carolyn Halsted, are far more than newsy chit-chat. They have the serious intention of either informing the outer world regarding purposeful developments in college methods, or of aiding the student to be more, to do more, and to get more than appears on the surface of college life.

EARLY AUTUMN.

The dark green summer, with its massive hues,
Fades into autumn's tincture manifold;
A gorgeous garniture of fire and gold
The high slope of the ferny hill indues.
The mists of morn in slumbering layers diffuse
O'er glimmering rock, smooth lake, and spiked array
Of hedgerow thorns a unity of gray.
All things appear their tangible forms to lose
In ghostly vastness. But anon the gloom
Melts, as the sun puts off his muddy veil;
And now the birds their twittering songs resume,
All summer silent in the leafy dale.
In spring they piped of love on every tree,
But now they sing the song of memory.

COLERIDGE.

NINETEENTH CENTURY NOTES.

I. THE OPENING YEARS.

"PROGRESS," says Victor Hugo, "is the fashion of men; the general life of the human race is called progress; and the collective steps of the human race are also called progress. . . . It is the permanent life of the peoples." Every thoughtful observer of past and present events who believes that "through all the ages one increasing purpose runs," finds himself asking at the close of this most changeful of centuries, how much and in what way has the nineteenth century contributed to the "permanent life of the peoples," or in other words what lasting work has it done for the elevation and self-government of man?

Impulses already stirring in the closing years of its predecessor thrilled the century when new. The inventions of Hargreaves, Whitney and Arkwright had given fresh impetus to industrial and consequently to domestic and national interests. Study of physical forces was revealing hidden powers of steam and electricity which were destined to triumph over time and space. In England and America philanthropy and reforms indicated an increased sense of responsibility of man for man, and of equal rights for all. The monarchs in other nations had begun to realize the importance of a better intellectual, social and political system, but as Professor Andrews says, "Reforms were undertaken in the interest of power." There was no thought yet of reorganizing the state for the benefit of the people.

From the memorable days at Runnymede and Rütli, which in the thirteenth century gave birth to English and Swiss liberty, the cause of freedom had been steadily growing. The reformation and the revival of learning, given wings by the invention of printing, spread through all Europe a spirit of revolt against the absolute authority of the church. The hold of the church upon political power was weakened and in England through the domestic infelicities of Henry VIII. entirely shaken off, the king becoming head of both church and state. When the Puritan read that in the sight of God there is no respect of persons, when Shakespeare by his plays and Chaucer by his merry tales showed that kings are but men with all the foibles common to humanity, when from Scotland came the fearless declaration that the will of the people is the only source of power, the doctrine of the "divine right of kings" went down.

Meantime, the disputed right of every man to worship according to his own conscience drove Puritan and Huguenot across the seas, where by the beginning of the nineteenth century the first true republic had been established by the will of a free people.

Continental nations were less fortunate than the English. "Force and the convenience of sovereigns," says Andrews, "had become the supreme law to the states of the eighteenth century." Louis XIV. well expressed the situation when he said, "I am the state." The pitiable conditions among the people of France during the century need no description. But the leaven of liberty was working. England was a standing object lesson to the French visitor of the advantages of representative government. America's success was an inspiration. The keen intellects of France made war on all existing institutions, and kindled confidence in the ability of the masses to govern themselves.

The English and American Revolutions had but swept away barriers to a natural orderly progress. The French Revolution threw that nation into a wholly different course of life. Government, religion, social customs, even the weeks and months of the calendar were changed. For ten years the institutions of France were turned from one mould into another in the effort to find one they would fit. Without training in the ways of self-government, France was forced to try a series of experiments. It was easy to tear down what had existed, hard to build up on new and untried foundations. Parties and leaders rose and fell in quick succession. Liberty became anarchy, and the Reign of Terror before which king, queen, nobles and party leaders went down, was absolutism developed to its highest degree. But when France announced her intention of extending her new principles of liberty to all governments, and commenced by annexing Savoy and Belgium, Europe felt it time to act, and there commenced the wars into whose whirlpool were swept during the next quarter of a century all the great nations of Europe and most of the smaller states, and out of which was destined to come a new Europe, geographically, politically, intellectually and socially.

Nations like individuals can not live forever at high pressure. The succession of weak governments in France gave her no peace at home and kept her embroiled abroad.

In her weakness the strong hand of the Corsican general laid hold upon her destinies. Popular government for the time was over, a ten years' strife had apparently ended in a return to "one-man power."

Whatever may have been his motives, Napoleon did a great work for France. Out of her own convulsive efforts had come the recognition of the equal rights of all men before the law, religious liberty, a plan for national education, and a patriotism that had never before existed. Upon this foundation Bonaparte set himself to build up a mighty nation which should cover not only all Europe, but in his

wildest dreams included India, Africa, America, and even the whole world. He was already strong in the intense personal loyalty and affection of his soldiers who were inspired by the brilliant successes in which they might justly feel they bore an honorable part, and they served him proudly and nobly. The story is told of a young sentinel whom Napoleon found keeping watch on guard one night. Wrapped in his long military cloak, the general thought himself unknown and boldly demanded entrance, not knowing the password. Closing the way with his musket, the sentinel stoutly refused admission. In vain the apparent stranger urged the importance of the message he must deliver. "No one can enter," declared the sentinel, "not even the 'Little Corporal' himself, without the password."

"And who, pray, is the Little Corporal?" asked the stranger.

"Sire, I think it is you," was the reply.

"And who, pray, is the Little Corporal?"
"Sire, I think it is you."

A wise code of laws, able management of finances, plans for internal improvements and universal education, the use of men of all parties which would best serve his purposes, soon gave Napoleon a firm hold in France. He had no sympathy with the ideals of the Revolution. "Sovereignty of the people he recognized . . . by convincing the people that he was ruling them as they wished to be ruled." Yet in divine Providence he was to be the very agency by which liberty was to spread abroad.

The desire of France to extend the blessing of liberty to other nations had been persistently interpreted by them to mean a desire to extend her own power. It was not in human nature not to rebel. Matters were not helped by the ways in which liberty had been manifested in France during her ten years' attempt at a republican government. If "liberty, equality and fraternity" meant wild scenes of almost unparalleled bloodshed, the nations of Europe may be excused for desiring to have none of them. In Napoleon they thought they saw the Revolution personified and were ready to fight to the bitter end to prevent his success.

Space fails to tell the story in detail. Some one has said that in the different alliances of the first fifteen years of the century nations changed places as in an "international game of stage-coach." Every temporary peace brought a making-over of the map of Europe. Old national lines were erased, new ones made, and perhaps in the next peace treaty these in turn disappeared.

Marvellous military victories crowned Napoleon's career, yet one barrier ever stood in his way. England was omnipresent. "Give me the English Channel for six hours," he cried, "and I am master of the world." It was to crush England that he sought Egypt and India, made treaties with and fought by turn every continental nation, sold the Louisiana Territory to the United States, and forced upon Europe and America the "continental commercial system." His very success, however, drew the petty states together for mutual aid, stirred a national pride and brought up to the help of rulers the loyal support of their peoples. Nations began to recognize more clearly the rights of others. Common danger created a common interest, although it was only by repeated reverses that the strength of unity was learned. The work begun by the "battle of the nations" at Leipsic, was finished by Waterloo and the rule of Napoleon with his dreams of a world-wide personal supremacy was at an end.

To outward appearances the Revolution had accomplished little. But the spirit of nationality had been aroused; and throughout the continent nations had come to know each other better, to recognize their mutual rights and responsibilities, to take counsel with each other as to their united duties. Hence, while for the time being the wheels of progress seemed blocked, the eternal principles of liberty and equality had been recognized, and the path marked out for the rule of the majority.

TOPICS FOR THE YEAR.

	Grade I.*	Grade II.*	Grade III.*	Grade IV.	Grade V.	Grade VI.	Grade VII.	Grade VIII.	High School.
Sept.	Grapes or wine. Growth, height and weight. Tobacco.	The parts of the body; how to care for each.	Proper breathing. Ventilation. Tobacco.	Framework of body; bones, teeth, joints.	Food and drink.	Review work of fifth year, especially food and digestion.	Cells and tissues.	Review work of seventh year, especially narcotics and food.	Tobacco.
Oct.	Body as a whole. Cleanliness. Water.	Apples or cider. Grapes or wine.	Food and drink. Stomach and digestion.	Wholesome food and drinks.	Digestion.		Bones.		Framework of the body.
Nov.	Apples or cider. Position in walking, standing, sitting.	Food and table manners. Sense of taste.	Parts of the body. Alcoholic drinks.	Stomach and digestion.	Alcoholic drinks and fermentation.	Assimilation and secretion.	Muscles.	Digestion.	Muscular system.
Dec.	Food. Good and bad uses of grain.	Beer and other alcoholic drinks made from grains.	Position. Bones and joints.	Blood. Heart and circulation.	Special senses.	Muscular system.	Nervous system.	Assimilation and secretion.	Heart and circulation.
Jan.	External parts of the trunk. The senses; their uses and care.	Tobacco and cigarettes. Sense of smell.	Muscles. Physical exercises.	Respiration. Tobacco.	Framework of the body.	Heart and circulation.	Organs.	Circulation.	Respiration.
Feb.	Upper limbs; arms, hands, and fingers.	Eye and sight. Ear and hearing.	The blood and its work.	Brain and nerves.	Cigarettes and tobacco.	Respiration.	Skin.	Respiration.	Secretion. Excretion.
Mar.	Head and face. Care of hair, teeth and nails.	Sense of touch.	Brain and nerves.	Alcoholic drinks. Special senses.	Covering of the body.	Nervous system.	Alcoholic drinks and narcotics.	Tobacco.	Food and digestion.
Apr.	Lower limbs; legs, feet, toes.	Review of senses. Skin and cleanliness.	Skin. Special senses.	Muscles.	Bodily organs.	Alcohol and tobacco.	Food.	Excretion.	Fermentation. Cell life.
May	Review food and drinks; tobacco.	Review parts of the body; food; taste.	Review food; stomach; digestion.	Skin. Bathing and care of body.	Review food; digestion; alcoholic drinks.	Review all fifth grade topics.	Review first half of year's work.	Review all seventh grade topics.	Nervous system. Special senses.
June	Review parts of the body; its care.	Review drinks containing alcohol; tobacco.	Review year's work.	Review year's work.	Review muscles; framework; tobacco; skin; organs.	Review all sixth grade topics.	Review second half of year's work.	Review all eighth grade topics.	Review all topics of the year.

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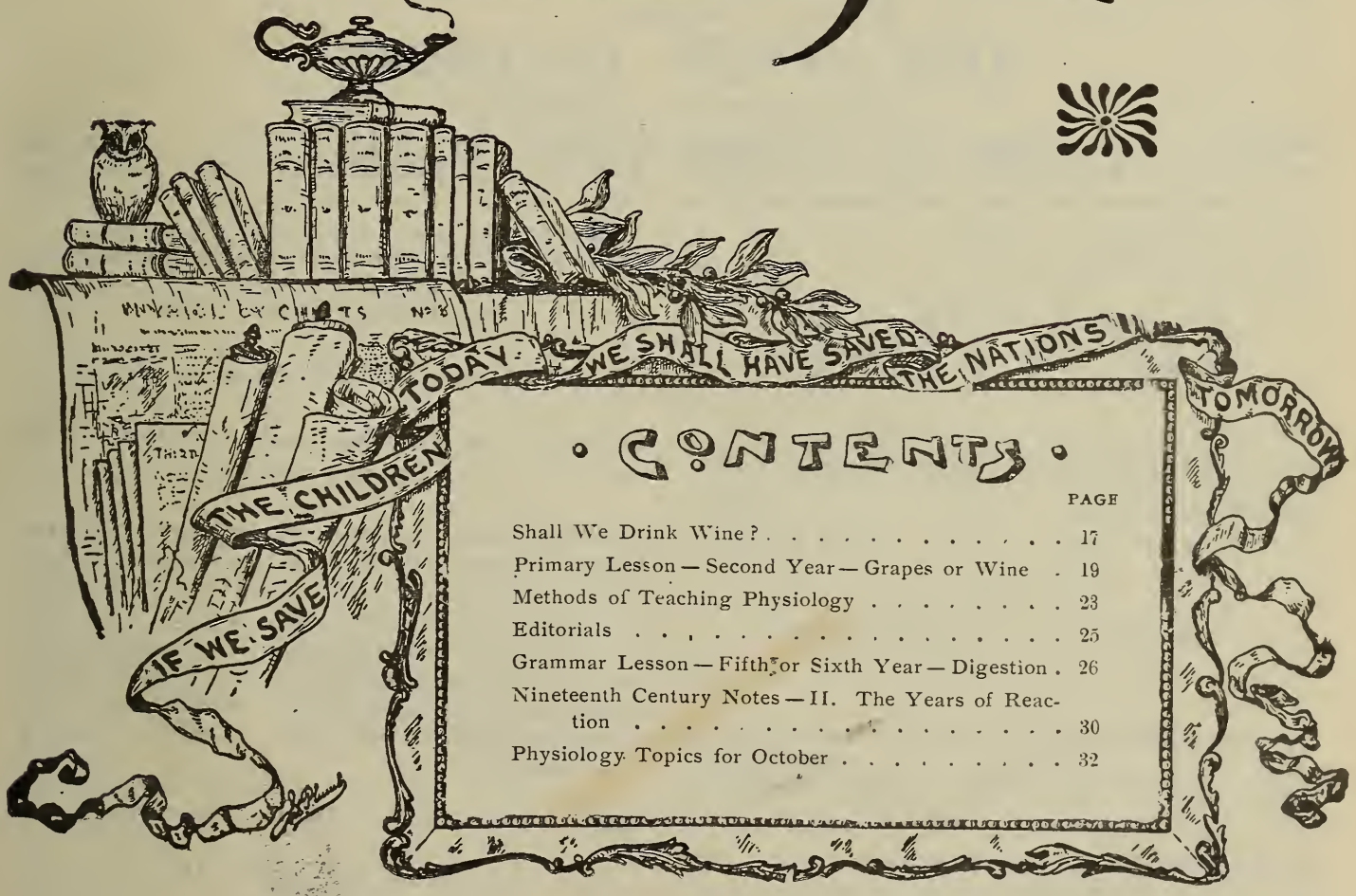

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School Physiology Journal

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WORSHIP.

I WANDERED down the dim-light forest aisles,
With brooding eyes and reverent slow feet;
I saw the quiet arches overmeet,
More fair than medaeval-building piles.

I traced the shadowy cathedral lines,
And heard the tiny choristers repeat
Their Benedicite, upsinging sweet
Above the surging octaves of the pines.

Most holy high cathedral of the wood,
Whose doors are ever open night and day,
That they who will may enter, it is good
In thy great name to linger and to pray;

Thence from the silence and the solitude
To go ennobled on the daily way.

EDITH C. BANFIELD, in the Atlantic.

SHALL WE DRINK WINE?

FALLACIES REGARDING ALCOHOLIC BEVERAGES.

OF all the alcoholic beverages none are held by the majority of civilized people to have the transcendant virtues of wine. No other food or beverage has commanded so much adulation from all kinds and conditions of men. It is amazing, when one stops to consider the matter, how little foundation there is for the average man's opinion as to the value of wine. Good wine, in his estimation, is always desirable. He may abhor drunkenness, look upon the drinking of spirits as dangerous and demoralizing, regard the drinking of malt liquors with contempt; and yet he may consider the drinking of a bottle or more of wine each day as a duty which he owes to his health, his material success in life, or his social position; and he is apt to regard the contents of his wine-cellar as one of his greatest treasures. If he is asked the reason for the value he puts upon his wine, he certainly can not call attention to its intrinsic worth, for he is not a chemist nor a physiologist. His answer must be that it cost him a large price per bottle, that it was made at a famous "Chateau" and that the wines from this place are always high priced; that it was part of the contents of a famous wine-cellar which was recently sold, or that it is many years old and came to him through the will of his father, grandfather, or some other relative.

No error, by the way, is more common than that which gives increasing value to wine with increasing age. This value is looked upon as something very real and potent. New wine may be thought unfit to drink. The same wine after ten years is considered good and commands a high price; but let this same wine acquire an age of a hundred years or more, and it now commands a fabulous price and is looked upon as a veritable elixir vitæ. One is gravely told, even by intelligent men, that no matter in what quantity drunk, such wine is never harmful; it will surely produce drunkenness when taken in sufficient quantity, but even drunkenness produced by it leaves no bad after effects; good wine is supposed to be tonic and stimulating; red wine is believed to have the power of making "red blood;" good wine is supposed to be always beneficial; when injury is done by wine it is not the wine which is believed to have done the injury, but the suspicion of adulteration is at once aroused.

There is a wide-spread belief that all the common alcoholic beverages are more or less adulterated with harmful substances, and that the damage done by them is not so much due to the beverages themselves as to the poisonous drugs used as adulterants. Many persons willingly drink the currant, grape and other wines made within the precincts of the household who could not be induced to drink the ordinary article of commerce. Indeed, one frequently hears the praises of the domestic article sounded for its wholesomeness and its purity. A few years ago, when one of the southern states assumed the duties of dispensing liquors to the public, a great deal of opposition to the plan was silenced by the assurances on the part of the governor and his followers that under state authority the liquor sold would be pure. Also, in other states in which stringent laws were passed to regulate the liquor traffic, provisions were incorporated to prevent the sale of adulterated liquors, with the hope of lessening the evils attending their consumption. Those who speak of the prevalence of liquor adulterations, however, rarely make any specific charges as to the material used for adulteration purposes. Now and then one hears of spirits being mixed with "impure alcohol," fusel oil, and the like. As a matter of fact, however, the ordinary sophistications of spirits are harmless. They are added with the desire of increasing the bulk, and consequently the profits of the sale of the liquor. For this purpose the most common adulterants are water, to increase the bulk, and caramel or burnt sugar to maintain the proper color; and these are not only not harmful, but render spirituous liquors less irritating by decreasing the amount of alcohol.

While "impure alcohols" are widely spoken

of by both physicians and laymen as being used to adulterate liquors, and especially wine, no one has yet pointed out the nature of the impurities. The most common and almost only impurity met with in ethyl alcohol, the ordinary alcohol of commerce, is water.

A recent French writer, Mr. Joffroy, calls attention to the fact that many commercial beverages also contain additions to the ordinary products of fermentation, as absinthe, anisette, vermuth, bitters, and the like; that brandy contains other alcohols than ethyl, aldehydes, and acetic ether. He also calls attention to the various volatile substances and salts found in wine and malt liquor, and argues that those as well as the alcohol must play an important part in producing diseased symptoms. There can not be any doubt that absinthe produces conditions peculiar to itself, and it is likely that aromatics like anise are added to various made beverages in quantity sufficiently large to produce notable effects; but he has produced no evidence to show that the ordinary spirits and wine of commerce contain any of the natural by-products of fermentation in quantity sufficient to cause definite pathological conditions.

In conclusion, it must be said that the popular belief in harmful adulterants of common alcoholic beverages is not warranted by any evidence which has thus far been brought to light, and alcohol alone must be responsible for the damage done by them. * * *

Not through drunkenness alone, as that term is popularly understood, but also through "moderate drinking" is the average moral tone, the average capability for exercising the subtlest mental processes through which fine distinctions of right and wrong conduct are determined, immeasurably lowered. The human brain, through countless centuries of evolutionary progress, has acquired a fineness of texture, a sensitiveness to external impressions and a corresponding swiftness of function which make it the most powerful and, at the same time, the most easily injured of all animal organs. It is just upon this fineness of brain texture that civilization depends for the carrying out of her highest aims and purposes, for the solution of the manifold and complicated problems which social progress is bringing forth on every hand; and it is this same fineness of brain texture that is destroyed or rendered impossible of development under the influence of even "moderate" quantities of alcohol daily ingested.

Alcohol exerts its corrupting influence beyond those who drink it. Its evils act as examples to corrupt the impressionable of all classes. The saloon attracts not only those who are inclined to drink, but all kinds and grades of evil-doers. It is as truly the pest spot for the development of crime as is the sewage-contaminated well the source of typhoid fever. Is a murder, a highway robbery, a burglary to be committed, it is almost always planned in the private room of a saloon. So are the numberless petty crimes by organized gangs of human vultures who prey upon the industrious public.

In short, the universal consumption of these alcoholic poisons renders impossible the realization of civilization's highest ideals. It does this because it destroys a vast number of useful lives, destroys an immense amount of valuable brain matter annually, increases insanity, incurs the expense of supporting a vast army of non-producers, immeasurably increases crime, brings unhappiness, poverty, and misery to millions, and causes a corrupt administration of the affairs of government. I firmly believe that we have in this country of ours a system of government, natural resources, and a people of the kind to give to the world in fifty years, if the production and importation of alcoholic beverages were absolutely prohibited, a people that for beauty, strength, virtue, material wealth, and happiness would equal the fondest dreams of the millennium.—JOHN MADDEN, M.D., Professor of Physiology in the Wisconsin College of Physicians and Surgeons.

"Why, Mrs. Jamesby!" exclaimed a neighbor across the backyard fence. "Do you beat your own carpets?"

"Yes," replied Mrs. Jamesby. "I don't mind it. It's good exercise."

"I should think you'd have Tommy do it."

"Poor Tommy!" rejoined the good woman, resuming her exercise. "He belongs to a gymnatic class down town, and he's so tired when he comes home in the afternoon that I haven't the heart to ask him to take hold of any work like this."—[Youth's Companion.

THE SOUL OF A BUTTERFLY.

Over the field where the brown quails whistle,
Over the ferns where the rabbits lie,
Floats the tremulous down of a thistle.
Is it the soul of a butterfly?

See! how they scatter and then assemble;
Filling the air while the blossons fade,
Delicate atoms, that whirl and tremble
In the slanting sunlight that skirts the glade.

There goes the summer's inconstant lover,
Drifting and wandering, faint and far;
Only bewailed by the upland plover,
Watched by only the twilight star.

Come next August when thistles blossom,
See how each is alive, with wings!
Butterflies seek their souls in its blossom,
Changed thenceforth to immortal things.

—THOMAS WENTWORTH HIGGINSON.

Primary Lesson.

SECOND YEAR.

GRAPES OR WINE.

"AMERICA needs armor-plated boys," says an exchange, "more than she needs warships." Two years ago we gained an easy victory over Spain because of our admirably equipped navy and the wise policy of those leaders who had foreseen the coming conflict and were prepared to meet it.

Character as well as life is at stake in the greater struggle against intemperance which has yet to be brought to successful issue, and here, too, the foe must not catch us napping. The nation's safeguard for the future will be the youth who now throng the schoolhouses of the land, and it is our duty to send them forth iron-clad in those principles of sobriety which alone lead to victory.

In many sections alcoholic liquors are first tasted in the sweet wines of the grape season, and most children sooner or later must be prepared to meet the same form of temptation. We shall be wise, then, to forestall the danger, by explaining to our pupils in the early years of school life why it is unsafe to drink even a little grape-juice after it has been changed to wine, while it is perfectly safe and wholesome to eat ripe grapes.

A FRUIT LESSON.

Bring a plate of assorted fruits into class. These should be as perfect in form and color as can be found, bright red or yellow apples, peaches, pears, oranges and bananas, and clusters of purple, white and red grapes. Add also any other ripe fruits which are found in the neighborhood and can easily be had.

Make this fruit lesson one of observation and comparison. Hold up the fruits one by one. Call attention to the different shapes, letting the class tell which are round, and which oblong or oval. Ask which have smooth skins, which has the prettiest color, which they would like best to eat.

Have the children close their eyes and name the different fruits by their odor. Test them in a similar way with the sense of taste, asking them to hold the nose as well as close their eyes, in order that taste may not be helped by smell. Put drawings of the different fruits on the board in colored chalk, for the children to copy in water-colors, or with colored pencils.

Find how many know where each fruit comes from. Who has seen it growing? What kinds grow on trees? What do grapes grow on?

If the children know fruit only as they see it in stores and on fruit-stands, show pictures of trees and vines as they appear in blossom and again when loaded with fruit. Tell where each grows, whether in warm countries or in temperate climates like our own.

HOW GRAPES GROW.

After as much general work of this nature as time allows, take up the grape more in detail. Help the class to describe how grapes grow in clusters, something like currants, instead of singly like blackberries or plums; the different shapes of the purple, red and white grapes; the tough skin which surrounds the pulp and seeds. Explain what each part is for—the seeds to make little new plants, the pulp and juices for food, the skin to protect the pulp and seeds. Ask what a grape-vine looks like before it begins to grow.

Show grape seeds. Draw one on the board, asking the class to play it has just been planted. Then ask some one to tell what happens when a seed is put into the ground, and to describe the tiny leaves and the root curled up in their small brown house, ready to walk out and grow as soon as they have a chance. Help the children to recall what they have learned about the growth of other plants; how the root strikes down into the soil after food and water, and the stalk shoots up towards the air and sunshine. The grape grows in the same way. Sketch on the board with colored chalk a grape-vine, showing the leaves, the tiny tendrils by which it climbs and keeps from falling, and the fragrant greenish-yellow blossoms.

Ask what time of year the leaves come out; when we find blossoms; grapes; how long it takes the grapes to ripen.

Tell the children that some things grow very quickly. It takes only a day or two for the first shoots to come up after the seeds are planted in the spring. But when the vine wants to make something very precious, like fruit, it works many months after the little grapes first set to make them large and ripe and sweet.

What are our choicest things? Ask the class what they think most of in the world. How do they take care of their favorite playthings? Why are they unwilling to lend them to careless children? How can the vine take care of its grapes?

Take the class out to see a grape-vine in fruit, if possible. If not, use pictures or blackboard drawings. Point out the tendrils which wind about the trellis, or any support

they can find, to keep the grapes from the ground. Show how the leaves protect the fruit from too great heat and cold as well as from strong winds.

Tell the Bible story of the twelve men Moses sent to explore the land of Canaan, describing particularly the grapes they found and brought back with them. What did this splendid fruit tell them about the land it came from? Do such grapes grow in this country? Ask the class to describe the largest cluster of grapes they have ever seen. Let them tell what they think the children of Israel did with the grapes brought from Canaan. How do we use grapes nowadays? This fruit is guarded so carefully by the vine until it is entirely ripe that we too must be careful to use it rightly. Tell a story to bring out some of the

GOOD USES FOR GRAPES.

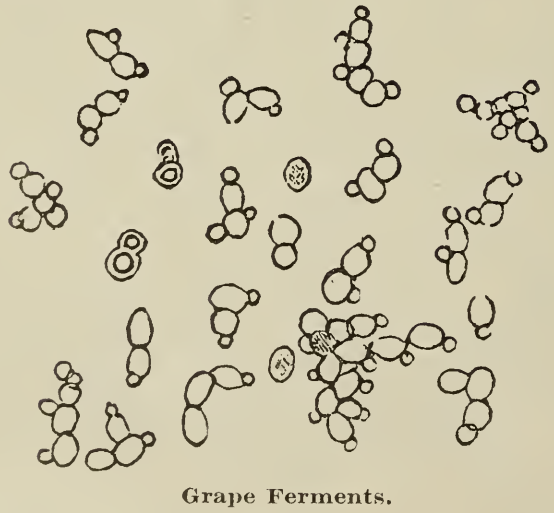
The twins were in the kitchen with mamma when the grocer came with two big baskets of grapes. The clusters in one basket were large and beautiful. Those in the other were smaller and only partly ripe.

Elinor and Ray clapped their hands in delight when they saw the lovely fruit.

"What are you going to do with such a lot of grapes?" they asked their mother. "Can't we have some? They look so nice."

"Ripe grapes are very good to eat," said mamma. "That is what these best ones are for, and you may each have a bunch before I put them away for the table.

"I am going to make jelly of these partly ripe grapes in the other basket. They are too



Grape Ferments.

green to eat but they will make very nice jelly, and next winter you may have some of it with your bread and butter."

"Oh, can't we stay and watch you?" chorused the children. "We won't be a mite in the way."

"Very well," smiled mamma, "if you'll sit quietly here by the table, I shall be very glad of such pleasant company."

"What else do people do with grapes besides eat them and make them into jelly?" asked Elinor presently.

"Sometimes they can them," her mother said, "or make them into jam or preserves and sauces. Another good way to use grapes is to dry them for raisins."

"Why, are raisins grapes?" asked Ray. "They don't look much like them."

Mamma brought out a bunch of raisins. "Don't you see they grow in a cluster on a stem just as grapes do?" she asked. "Look at the seeds, too, and you will find they are like grape seeds.

"In California and some other parts of our country people raise a great many grapes for raisins. A place where many grapes grow is called a vineyard."

"But what makes the raisins so wrinkled up? The grapes aren't. They are round and full."

"That is because the raisins are dried in order to keep them from rotting. Fresh grapes are full of juice. That makes them soft and round. They would not keep long like this, so when they are ripe men gather them and place them on large racks in the sun. When they are cured they are sorted and packed in boxes ready to be sent away and sold.

"What we call grape sugar forms in the grapes as they ripen, and when these are dried we can see it in little lumps in the raisins, colored by the juice.

"Sometimes, I am sorry to say, people make this nice fruit into wine. This is

A BAD USE FOR GRAPES.

"It is hard for children to understand why grapes and jelly are good to eat while the wine made from the same fruit is bad for them to drink, but I'll see if I can explain it to you because I never want my twins to taste wine, and they must know why to let it alone.

"Wine is made from grape juice but it is very different from the sweet juice we get when we eat grapes. Let us see what makes it different.

"Find a nice ripe grape in your clusters and rub your finger over it gently. What have you rubbed off?"

"It looks like white dust," said Elinor.

"Part of it is dust," said her mother; "but there are tiny plants growing there, too, so small we can not see them without a strong microscope.

"These little plants are called ferments, and they are alive and growing. They do not need earth to grow in, as most plants do, because they live on oxygen, a part of the air.

"When men make wine they crush the grapes, and the dust and these little ferments fall into the juice. Here they can not get oxygen from the air to live on so they must do

something else. There is oxygen in the sugar in the sweet juice as well as in the air and these little ferments very soon find it.

"If they just took what sugar they wanted for themselves it would not be so bad, but they spoil all the rest and change the sweet grape juice into a strong biting liquid. This is wine."

"Do we eat the ferments when we eat grapes?" asked Ray.

"Yes, unless we wash them off first. It is better to rinse grapes before we eat them because there is almost always dust on the outside which we do not want in our mouths. But neither the dust nor the ferments would be likely to hurt us as we find them on the outside of the grape. These little plants want only oxygen for themselves.

"What do you think keeps the ferments from hurting the juice in the grapes as they hang on the vine?"

"They can't get through the grape skin, can they?" asked Elinor.

"No; these little plants have no roots or leaves as larger plants have. When they are on the outside of the grapes they simply breathe the oxygen in the air just as we do. It is only when the grapes are crushed and these ferments fall into the sweet juice that they begin to make mischief. Now I'll tell you a little more of the harm they do here.

"I never want my twins to taste wine."

"If I should crush a bunch of these grapes into a glass and let them stand in this warm kitchen a day or two, you would see bubbles rising through the juice.

"The juice would not be so sweet as before. Part of its sugar would be changed to these little bubbles of gas and to a sharp strong liquid called alcohol.

"Alcohol is a poison. If you should drink very much of it by itself it would kill you. When people get it in wine there is usually not enough to kill them, but very often enough to hurt them in some way.

"When a man drinks wine and goes staggering about, or talks loudly without knowing what he says, it is because the alcohol in the wine has poisoned him.

"Very often people think because wine tastes good, and because there is not enough alcohol in it to make them drunk it will do no harm to take a glass now and then.

"But there is harm in even one glass. This is because a little alcohol, even as little as we find in light wines, has the power to make the drinker want more and more, until at last he may not be able to leave it alone at all. The only safe way to get our grape-juice is to eat it in fresh ripe grapes, and not wait until it has been pressed out and the ferments have had a chance to spoil it.

"Can you remember now why grapes are good to eat, and wine is a bad drink? Play you are the mother and tell me why I must never drink wine. Then we shall all remember to let it alone."

MEMORY POINTS.

Ripe grapes are good to eat and to make into jelly and preserves.

Raisins are dried grapes.

Very tiny plants called ferments are found on the outside of grapes.

The ferments can not get through the unbroken skin of whole grapes.

The ferments on the grapes live on the oxygen in the air.

When grapes are crushed and their juices pressed out, some of these ferments fall into the grape juice.

There is oxygen in the sugar of the sweet grape juice.

The ferments in the pressed-out juice can no longer get oxygen from the air to live on.

They take the sugar in this sweet juice to pieces to get its oxygen.

When the ferments have taken some of the oxygen from the sugar in the grape juice this juice is no longer so sweet and good for food.

Part of this sugar has been changed into a gas and a sharp biting liquid called alcohol.

Alcohol is a poison.

Grape juice is called wine when alcohol has formed in it.

The poison alcohol in wine has the power to hurt those who drink it.

There is danger in drinking even one glass of wine, because the alcohol it contains has the power to make people want more and more wine.

AUTHORITATIVE QUOTATIONS.

FERMENTS ARE FOUND ON RIPE GRAPES.

The bloom on the outside of the skin of the grape is full of ferment germs awaiting an opportunity to feed upon, and so to ferment the sugary juice inside.—W. T. Sedgwick, Ph.D.

FERMENTS CAN NOT HARM WHOLE GRAPES.

The ferments have no power of themselves to penetrate the unbroken skin of the healthy fruit.—Louis Pasteur, M.D.

THE HARM DONE BY MODERATE DRINKING.

The drinker is not conscious of loss of mental power and moral tone, but those who know him best are painfully aware that his perceptions are less keen, his judgments less sound, his temper less serene, his spiritual vision less clear, because he tarries every day a little too long at the wine.—[Medical Pioneer.

"They cut down from thence a branch with one cluster of grapes, and they bare it between two upon a staff."

WINE DRINKING LEADS TO DRUNKENNESS.

In the Swiss asylum for inebriates, thirty per cent. of the patients had not taken spirits or liqueurs, but had drunk beer, wine or cider.—August Forel, M.D.

The common belief that there is no wine or beer, but only spirituous inebriety, is an error. Of the inebriates treated at the Dalrymple Home in England, eight per cent. have been wine or beer drinkers.

—Norman Kerr, M.D., F.L.S.

Every drunkard was at one time a moderate drinker. Nature has offered us everything necessary for us, but man has set her gifts behind the preparations produced by fermentation which destory the taste for food, confine the natural appetite to constantly narrowing limits, and make the pleasure of eating of the teetotaler a terram incognitam to the alcoholist.

—G. von Bunge, M.D.

ALCOHOL IN HOME-MADE WINES.

Home-made wines are often stronger of alcohol than the imported, depending upon the amount of sugar added to the fruit. That made from raisins is even stronger than port, and elder wine is as strong of alcohol as cider, or the strongest malt liquors. Hence, home-made wines are far from being the innocent, harmless beverages some of our mothers thought when they told us there was nothing in them to hurt any one, as they knew they had put nothing in the wine but the juice of the fruit and the sugar to sweeten the juice.—William Hargreaves, M.D.

In my experience as a physician I find the moderate use of light wines very injurious even when taken in moderation, and I have noticed a very marked improvement in health when they have been given up.—W. J. Hall, M.D.

WINE IS A POISON.

Wine is a diluted poison, never necessary, never advisable. There is not a greater or more destructive error existing in human society, than the belief that wine and even distilled spirits do no harm if used in moderation, and may even supply some want of the system. There is no conceivable want that alcohol can supply. It only lessens our consciousness of the evils to which we are exposed, and thereby impairs our judgment concerning their effects upon us, and our power to relieve them.

—N. S. Davis, M.D., LL.D., F.R.S.

THE ALCOHOLIC APPETITE.

One of the worst features of the poisonous characteristics of alcohol is its power, even in small quantities, to create a craving for itself that becomes irresistible. It is therefore the nature of wine to lead to an increasing use of alcohol.—H. Newell Martin, M.D., F.R.S.

OCTOBER.

WHEN merry months that summer brought
Have laughed and cried themselves quite sober,
God sends a gracious afterthought
Of silent rapture, called October.

— Ella G. Ives.

METHODS OF TEACHING PHYSIOLOGY.

THROUGH the experiments of Professor Atwater, and his subsequent statements regarding them, the attention of the whole teaching profession has been directed toward the subject of physiology. Many teachers having an unexplained feeling of dissatisfaction regarding the subject have turned with some relief toward the suggestion that the teaching of physiology in the schools be discontinued.

Where there is so general a feeling of unrest and dissatisfaction there must be some real cause. The question then arises as to what is this cause. Does the fault lie in the subject matter or in the manner of presenting it?

In looking over all the recent school physiologies, and those older ones which have undergone recent revision, it becomes evident that, in general, the subject matter is in accord with the most recent accepted physiological theories and thoroughly up-to-date. The trouble, then, must be with the way in which the subject is presented by the teacher.

Teachers of history, or literature, or language are expected to bring to their work much outside matter, much correlated information to illuminate and illustrate their subject. Has the teacher of physiology this wide knowledge of related subjects?

To answer this question intelligently we must go to the schools where the teachers receive their preparation for teaching.

In most of the preparatory schools, high schools and normal schools of the central and western states, and I think I might also include the eastern states, the teachers of science are selected on the basis of their fitness to teach physics and chemistry, and are then required to teach, as best they can, such biological science as is deemed necessary. A very small proportion of these schools have special teachers for general biology, botany, zoology and physiology, while as a rule, physics and chemistry are taught by those who have had special preparation for teaching these branches which are therefore taught according to the best pedagogical methods, with experimental demonstrations and with more or less laboratory work. These same teachers having had no special work in physiology teach it as they were taught, without the aid of experiments.

So long as the biological sciences receive so little attention in the training schools, so long may we expect to find something wrong with the method of teaching physiology in the common schools. Even in those schools where special teachers are engaged for the biological sciences they are usually persons who have had their training along the line of general biology and know little or nothing of experimental physiology, and while they teach botany and zoology according to the latest methods they are likely to teach physiology in the old-time way.

One grade school teacher said, "O, I hate to teach physiology, I do not know anything about it; but we have to get through with it some way, so we just read it in class and get along the best we can." Judging from much of the so-called teaching of physiology which we see in public schools this teacher is not alone in her position.

There certainly is something wrong with the sentiment and with the preparation of a teacher who makes such a statement regarding one of the required branches of study. If a teacher did as poor work in history, geography or spelling as she is allowed to do in physiology, she would be asked to resign or to fit herself for the work.

The first step, then, toward the teaching of physiology is the better preparation of the teacher, not alone in physiology but in general biology whence she obtains her idea of the value of life and gets that wider view of the principles which underlie the whole subject. It is impossible to make a subject live and glow if the teacher's knowledge is confined to the contents of the book which she is teaching.

The teacher who has had a thorough preparation will supplement the text-book with many things which will throw light upon the subject. Among the things that might be introduced in the seventh and eighth grades and the high school, are plant physiology, physiological experiments, and domestic economy. Instead of introducing physiology by the time-honored way of bones and muscles, let the pupils first be given beans, peas and corn to examine in their dry state, let them find the parts of the seed, the skin, the food supply, and the germ, and make some chemical tests regarding their contents. (The iodine test for starch is a beautiful experiment on the corn seed.)

While this work is being done, other seeds may be soaking in water and still others germinating in soil. These seeds may be examined at different stages of their development and chemical tests made to see the effect of the germination. The young plant may be examined as to organs and later as to tissues,— active, supporting and protecting. The pupil can learn also something of plant digestion, respiration, circulation and excretion, and something of

plant reproduction and plant economy. When this has been done, the child for the first time sees that he is part of a great plan, and that plants eat, drink and breathe as he does, and that they have analagous tissues which carry on similar physiological functions. To a child taught in this way, the subject of physiology can never again be dull and uninteresting, or mean to him simply "bones and muscles."

A science can not be properly taught from a book alone, but must be taught through the examination of material and the observation of phenomena. Inasmuch as studying the human body in this way is out of the question, the introduction of plant material, which illustrates the same processes, supplies in part this want. It is never advisable to have vivisections before the pupils or even to show the dead bodies of cats, rabbits or domestic pets in class. Just as good teaching can be done from such material as can be gotten from the slaughter-house or the meat-market, viz., eyes, hearts, lungs, livers, kidneys, stomachs. Inasmuch as most of the pupils are already familiar with these things they do not seem repulsive and are very valuable teaching material. When the subject of foods is reached, the same experiments may be made upon foods for the body as were made upon the food supply in the seeds. Different foods may be tested for starch, sugar, proteid and fat. Later, under the head of digestion, the whole digestive process can be carried on upon different kinds of food before the eyes of the pupils; and starch, sugar, and meat can be digested in different tubes, and finally united into a mixture similar to the chyme which passes into the intestines.

"The elfish leaves
Dance with thin shadows on the floor;
And the lost children of the wind
Come straying homeward to our door."

If the class try digesting cooked and uncooked starch, cooked and uncooked eggs, cooked and uncooked meats, they will have a scientific basis later for their experiments in cooking and will feel that they made their own discovery of the principles which govern cooking.

After such a study of plant-food, and after learning which foods are nourishing to the body and what parts of the body they build up, the pupils are ready for the introduction of domestic economy.

Under this head, a given amount of money may be decided upon as the salary of the wage-earner and apportioned among the different needs of a family of five, that is, an average family.

Let the pupils themselves decide what these needs are and what share of the money should be allowed for each.

When the amount to be set aside for food has been decided upon, let the pupils plan its expenditure for a week, providing such food as will best supply all the elements that the body requires, and keeping the cost within the stipulated amount. These menus must state how the food is to be prepared, in order that allowance be made for the cost of cooking accessories.

One of the strongest pleas against the use of alcoholic beverages and tobacco can be made in this connection, for after a boy has struggled to apportion what seems to him a small amount among so many needs, he is loath to rent a cheaper house, or wear less comfortable clothes, or eat less nourishing food for the sake of so useless a thing as a narcotic.

A physiology class which had spent two weeks on domestic economy, making out menus for a family of five persons at a dollar a day, and later at fifty cents a day, was asked what they had learned from the two weeks' work. The answers were a revelation. Among them were the following: "Good food need not cost so much money as I thought it did;" "it is not always the food that costs the most that does the most good;" "boys ought to know as much about such things as girls;" "to be more careful what I eat;" "not to waste so much." These answers seemed to me to justify the introduction of domestic economy, and while many wondered at first what it had to do with physiology, they all saw its bearing upon the subject before they were through with it.—Mrs. Winfield S. Hall, Special Teacher in Physiology in the Berwyn Schools, Chicago.

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How the goldenrod glows
In the light of the morning!
And the brown bee well knows
How the goldenrod glows
Honey-sweet where it grows
The rough roadside adorning—
How the goldenrod glows
In the light of the morning!
—JULIA MORGAN HARDING.

STOCK OBJECTIONS.

NOT A PRIMARY STUDY.

NO feature in the temperance education laws of the land has been more stoutly contested by the brewers than the requirement that all pupils, especially those in the lower grades, shall pursue this study. It is easy to see the reason. Educational statistics show that sixty per cent. of the children in the public schools of the whole country never go to any school beyond the primary. This sixty per cent. constitutes more than a majority of the whole people of to-morrow who will be left to buy and vote for the brewer's beer if the primary school does not teach them better. Ninety-five per cent. of the children who enter the primary never reach the high school, thus only five per cent. of the whole would get the study if it is left to the high school years. No wonder the brewers oppose this study in the lower grades. That is how it is hurting their trade to-day. Their opposition is always under cover. Certain critics are pulling the brewers' chestnuts out of the fire by saying with owlish wisdom that this teaching in lower grades is unpedagogical. Save us from the scholastic wisdom that considers it unpedagogical to teach a boy not to smoke cigarettes and drink beer.

FINANCIAL INTERESTS.

Another objection raised is that the study should not be pursued because its advocates are influenced by financial motives. Would a parent in deciding whether his child should learn to read stop to find out who would make a penny on the primer his child would use? Unjust accusations are always hurled against the reformer. The financial interest is on the other side. The children of to-day are wanted to swell the ranks of confiding customers for the brewer's beer to-morrow. In reality the children are wanted for the drunkards of to-morrow, and they are our children. One of the strongest instincts in human nature, parental instinct, has opposed and defeated the effort to keep this study from the lower grades, and it will continue to do so if we only get the facts before the people. The people can be trusted if they understand. "They are never robbed of their rights. They are cheated out of them," said Wendell Phillips.

THE TIME REQUIREMENT.

To prevent the mistaken interpretation that the language "all pupils in all schools" implies that this branch shall be studied every day in every school year, which would be overdoing the matter, the best laws specify the number of lessons each year. But why is it not better to mass this study and let it be pursued one year in the primary, one in the grammar grades, and one in the high school? critics ask.

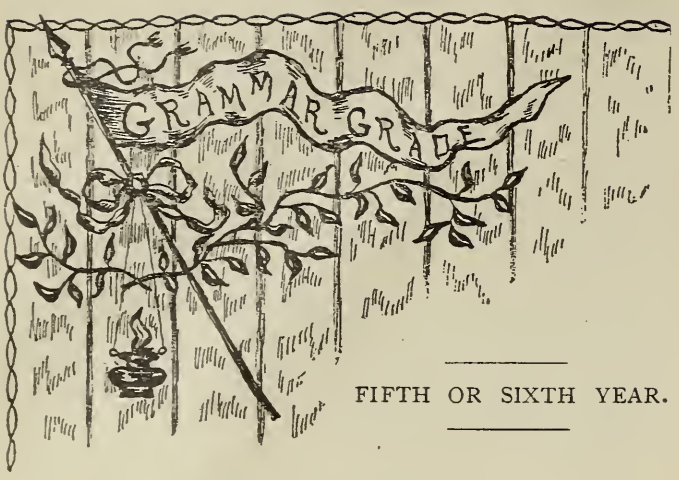
To do this would be to forget child nature. The child is each year forming new habits. Graded instruction must keep pace with and guide these aright, if our work is to be one of formation instead of reformation. The child forgets the lessons of the last year and considers them too babyish for his larger growth unless they are renewedly presented with a more advanced development as he proceeds, as in the case of other studies like arithmetic and geography.

We should lose boys by the former method. The warnings of the primary would not keep the fifth and sixth year boy from becoming a cigarette fiend or drinking cider or beer.

A QUESTION OF MAJORITIES.

Do you say these are pedagogical details that may well be left to school authorities? Not so, for where they are so left experience shows that evasion, intentional or otherwise, often follows. As temperance workers we should understand these points and strive to secure them in the schools, whether or not the particular law of our states contains all these specifications.

If the study is so conducted in the schools that only a minority of the children get this instruction, or if it comes so late in school life that cigarette or other wrong habits are formed before they reach this study, we shall be educating only a minority of that coming public opinion of which we must have a majority to abolish that abomination of desolations, that cancer spot in our civilization, the saloon. We are dealing in futures as we work for the faithful education of all pupils in all our public schools on this great topic.



FIFTH OR SIXTH YEAR.

DIGESTION.

IF there is one thing more than another which needs to be impressed upon the minds of young people it is that they will be, in the long run, what they make themselves. Some are born of better stock, some have advantages and opportunities which do not come to others, but in spite of different conditions and material each has in his own hands the carving of his future.

It is a good thing for boys and girls to sit down occasionally and remember that they or their young friends are to take the places of the lawyers, the bankers, the authors, the farmers, the business men of their locality. It is they, also, or some of their contemporaries, who are to be the town paupers, the criminals, the tramps, the helpless invalids of another generation. Either possibility is open to them and one must be chosen.

A child is made of too valuable material to be wasted or allowed to waste himself. Many parents have put all they are worth into their children's training and education. They have a right to good returns from this investment, to expect that their boys and girls will make the most of themselves in whatever direction their talents lead. Let young people calculate how much they have cost their parents in dollars and cents, and decide whether it is fair on their part to do aught which may impair their health and imperil that success in life of which their fathers and mothers have dreamed.

During recent years hygiene has been introduced into the very beginning of the school curriculum, because our law-makers realize that "it is supreme wisdom to commence life's education with a refining care of the body." It is impossible for the child to realize all at once the value of health and learn how to take care of that most intricate and wonderful machine, his body. Instruction on this topic must be given often, quickened by the fine glow of enthusiasm with which every teacher who feels the responsibility of her position will illumine the subject.

America has been called a nation of dyspeptics. The universal teaching of hygiene in our schools should remove this stigma in the next generation, and give us men and women with digestive organs which are sound and healthy because the children of to-day have learned how to avoid the mistakes of those who preceded them.

OUR NEED OF DIGESTIVE ORGANS.

"If I were a boy with my man's wisdom," says Bishop Vincent, "I would eat wholesome food and no other. I would chew it well and never bolt it down. I would eat at regular hours. I would never touch tobacco, chewing-gum, or patent medicines; never let a year go by without a dentist's inspection and treatment; never sit up late at night unless a great emergency demanded it; never linger one moment in bed when the time came for getting up; never fail to rub every part of my body every morning with a wet towel, and then with a dry one; and never drink more than three or four tablespoonfuls of ice-water at one time."

Put this statement of a wise, deliberate man who has seen much of life and knows whereof he speaks, on the board as your class begin the study of digestion. Later on it should be analyzed and explained. The best way to show why we need digestive organs will be to study first their use in simple forms of animal life. If a compound microscope can be had, place a drop of stagnant water on the slide and show the class the minute animal forms it contains, alive and moving about. Blackboard drawings will do if no microscope is available.

Draw a single cell with tiny projections. This represents the amoeba which is really so small we can not see it with the naked eye. But it is alive and needs food to make it grow. Have the class notice that it has no legs to go after its food, no hands to take it when found, no mouth, no stomach.

Explain, with the aid of drawings, that it moves by thrusting out one of these tiny projections and drawing the rest of its body up to it. It eats by surrounding bits of food, absorbing into itself what it wants, and then casting out the remainder. Its whole body becomes a stomach for the time being, and every part absorbs some of the food.

Draw a caterpillar and help the class to find some of the differences between it and the amoeba. The caterpillar can not take in food at any part of its body. It has a mouth with which it eats and the food is not absorbed into its body as soon as it is swallowed.

Sketch the simple tube which forms its digestive organs, and explain that because the body of the caterpillar is made of many cells of different kinds, and hence is more complex than that of the amoeba, its food needs more

careful preparation before it is ready to be made a part of its body, hence the caterpillar has a digestive tube in which the food remains while being prepared.

Show by diagram how a chicken's digestive tract differs from that of the caterpillar. Help the class to understand why these organs are more elaborate in the chicken. Ask why the chicken's body is made of more parts than the caterpillar. Show why it requires more food; why it takes longer to prepare the chicken's food to nourish every part?

By similar drawings, or from charts in a physiology, show the digestive organs in man. Have the pupils show how this is more complex still, and try to explain the reason. Ask why people need a stomach; what answers this purpose in the fowl; why would not one straight tube, such as the caterpillar has, do for man?

Have a number of physiology charts, and from these show how complex the human body is, of how many organs it is made up, and how widely they differ in appearance. But each must be fed and have its food made just to suit its needs. Hence there must be in man, as in the larger animals, a very long digestive tract in which the food may be kept until it is quite ready for use.

WORK OF THE DIGESTIVE ORGANS.

Have the class find where digestion begins. Then write a list of all organs which have anything to do with preparing the food we eat to be taken up by the blood.

MOUTH DIGESTION.

Call on different ones to explain as far as they can that part of digestion which takes place in the mouth. Have them find what the teeth are for; why they are not all alike; what kinds of food, judging from their size and shapes, man is fitted to eat.

Ask them to study the teeth of different animals; to find how the teeth of the cow, horse, dog, are alike and unlike man's. Why have birds and fowls no teeth? How can they digest corn and other grains which form part of their food without chewing them?

Bring an oyster into class, and have the pupils find its mouth. Why has it no teeth? Let them study also a caterpillar's mouth, a frog's, butterfly's and fish's, finding which of these have teeth, and why those without them have no need of this organ.

Make a study of the saliva. Have the class find where and how it is secreted; where it comes from; what it is for; how the sight and smell of food affects it; what it has to do with our tasting and enjoying food; how it helps in swallowing it.

Give the class bits of well browned toast to chew. Have them decide how it tastes at first, then after it has been well chewed. Have them find from their text-books that bread is largely made of starch. Then develop the fact that saliva changes cooked starch to sugar. Explain the reason for this, that it is because these sugar particles are smaller and more easily dissolved than the starch, hence can be better absorbed by the body.

STOMACH DIGESTION.

Help the class to explain how food is swallowed; how we know it does not drop from the mouth to the stomach; why it is difficult to swallow a very small bit of anything; how a horse can drink when his head is lower than his throat or stomach.

Ask them to describe food as it enters the stomach, then show how it has been changed since it was taken into the mouth. Ask all to find what kinds of food are not digested in the stomach; then what the juices of the stomach digest which the saliva has no effect upon; and finally what kinds of food have to be passed along still further before being made ready to be taken up by the blood.

Make a study of the gastric juice similar to what has already been learned of the saliva, finding where it comes from, what it is made of, and what changes it makes in food.

Have the motions of the stomach during digestion described, and the reasons for these given. Have the class find how much the stomach will hold, and from this determine how much should be eaten at one time.

INTESTINAL DIGESTION.

Ask the class to make drawings of all the digestive organs, and prepare to explain the special function of each. Have them find from charts the different glands which secrete digestive fluids, and learn why each is necessary. Help them to understand the use of the liver and pancreas and what the intestinal juices are for.

Consider again the kinds of food which are digested after they leave the stomach; find where and how starchy foods and fats are digested; and what finally becomes of the nutritious parts of the food eaten.

Take the class into some factory and show the many people needed to make even small articles. Each has his special part of the task and when all work together it is completed. Help the class to see how the same is true in the digestive system of the body. The saliva, gastric juice, bile, pancreatic and intestinal fluids are each needed to prepare the food for use by our bodies, and all work together harmoniously when not interfered with.

STRUCTURE OF THE DIGESTIVE ORGANS.

Refer to the outline drawing of the digestive organs already on the board. Ask the class to

find of what different materials they are composed, and why all parts could not be made alike. Have them consult their books to find what the teeth are made of, the esophagus, the stomach, the liver, pancreas and intestines.

Ask why muscles are needed in the gullet, why the stomach is made of more than one coat, how these coats differ, what special work has each?

Show by drawings the inner surface of the small intestines. Have the class try to think of reasons why the intestines consist of a series of pouches instead of one smooth tube; and why muscles are needed in their walls. Show the villi and explain their use.

Food taken into the body has to move a distance of twenty-six or twenty-seven feet in passing through the entire system of digestive organs. Set the class to thinking how it can do this. It has no power to move itself, and part of the time it must travel uphill. Use a piece of elastic to show how muscle can move. Then help the class to decide in what parts of the digestive system muscular tissue is needed, and point out such parts.

Have them find from their physiologies the kinds of tissue of which glands are made, and show how this material differs from muscular tissue. Explain that the digestive organs are not loose from the body but are attached by bands of tissue to the walls of the cavity in which they lie. Help the class to decide why this is necessary in order to hold each part in its proper place.

Review this topic by calling on every one in the class to show how the structure of one part or another of the digestive system exactly fits it for the work it must do.

CARE OF THE DIGESTIVE ORGANS.

Call attention to the quotation from Bishop Vincent copied on the board when the class began the study of digestion. Ask one pupil to find physiologic reasons why one should eat wholesome food; another to show how unwholesome articles of diet are injurious to the digestive organs; a third to find why it is essential to chew each mouthful well before swallowing; others to explain the necessity of eating at regular hours; to describe how the digestive organs may suffer or get out of order when tobacco, chewing-gum, patent medicines or any form of alcholic liquor is used; to show why the teeth need regular care and treatment; why both rest and exercise are essential and how they can effect the work of the digestive organs; how cool baths and gentle friction of the skin help digestion; and why it is undesirable to take ice water into the stomach.

Get as many statements as possible from the class on each of these points and call for illustrations to prove each statement correct.

Refer to the experiments of Drs. Chittenden and Mendel quoted at the end of this lesson, to show why no one who wishes a good digestion and sound health in middle life can afford to use any form of alcoholic liquor in his youth.

AUTHORITATIVE QUOTATIONS.

WINE RETARDS SALIVARY DIGESTION.

Wines have a very marked inhibitory action on salivary digestion, while pure alcohol, even in very dilute solutions, retards the salivary digestion of starch.— L. F. Cope, M.D., St. George's Hospital.

BEER RETARDS DIGESTION.

Lager beer in so small a quantity as three teaspoonfuls at a meal has been found to retard digestion to a very marked degree.— Drs. Chittenden and Mendel, Yale University.

ALCOHOLICS DO NOT NOURISH.

I do not think that anything should go into the stomachs of any of the animal creation (man is an animal) unless it is really for his good. The human stomach in a perfect state does not need wine or beer; real nourishment only should be put there. If the stomach is disordered, there are plenty of other things that are fully as healing and less dangerous to use. Everybody knows the danger of moderate drinking of fermented or distilled spirits. The very smell of the stuff is dangerous.— J. M. Messenger, M.D.

ALCOHOL HINDERS DIGESTION.

Is alcohol a digestive? No; its ingestion produces a passing excitation, interrupts the proper action of the muscles of the stomach, because alcohol acts as a anæsthetic after having irritated the walls of the stomach, and it drives the blood to the skin and so hinders the action of the gastric juice.— Dr. Bienfait of Liege.

EFFECT OF ALCOHOL ON THE STOMACH.

Alcohol's action on the stomach is two-fold. Chemically, it coagulates the albuminous contents, precipitating those in solution, including the digested peptones which have been prepared for assimilation, as well as the pepsin itself. Physiologically, after the first vascular and muscular excitement, if the dose be sufficient, muscular contractibility is arrested, flaccidity and dilatation resulting, and active digestion is interfered with.— Capt. P. W. O'Gorman, D. P. H., Cantab.

As long as there is alcohol in the stomach, there will be no digestion. Food remains unchanged in the stomach for hours.

— J. Rosenthal, M. D.

VERY LITTLE ALCOHOL DIMINISHES DIGESTIVE ACTIVITY.

A very common belief is that alcoholic liquors aid the process of digestion, but the results of experimental evidence are against this. Drs. Chittenden and Mendel, of Yale University, have carried out a series of experiments in which digestive fluids were allowed to act upon various food substances of the proteid class under definite and constant conditions. It was found that when so small a quantity as two per cent. of alcohol was present the digestive activity was always diminished, and it was uniformly decreased in direct ratio to the quantity of alcohol used. The experiments with brandy, gin and rum all showed decreased digestive action. Three per cent. of claret showed decreased activity in every case. As the common intoxicants in use seldom contain less than five per cent. of alcohol, it will be seen that they all possess the quality of retarding, instead of aiding digestive processes.—W.N. EDWARDS, M. D., F. C. S.

So small an amount of whisky as one per cent. diminished the digestive activity in three experiments, and to the average amount of over six per cent. In larger amounts the diminution of the digestive activity was very decided, amounting in one case to twenty-one per cent. with six per cent. whisky. So small a quantity of sherry wine as one tablespoonful taken with a full meal will diminish digestive activity in seven cases out of eight.

—J. H. KELLOGG, M.D.

"She will bring thee all together,
All delights of summer weather
And the heaped Autumn's wealth of Ceres'
golden reign."

ALCOHOL RENDERS PEPSIN INERT.

Chemically, alcohol interferes with the normal process of digestion by rendering the pepsin inert so long as the alcohol is present.

—JOHN MADDEN, M.D.

ALCOHOL INJURES PANCREATIC DIGESTION.

The effect of alcoholic liquors on the digestive activity of the pancreas is even more injurious than on the stomach. Two per cent. of alcohol absolute was found by Drs. Chittendon and Mendel to diminish digestive action as much as ten per cent. Whisky, which is very commonly drunk with meals as a cure for indigestion, was found to be especially injurious, ten per cent. producing a diminution of nearly seventeen per cent.— [Medical Temp. Review.

DECEPTIVE CHARACTER OF ALCOHOL.

The fallacious feelings of ease, warmth and comfort which cause the unwise, excessive eater to think that alcohol has aided the digestion of the mass within, are mainly deceptive feelings, due to the benumbing influence of the anæsthetic poison in deadening the uneasiness and pain of indigestion.—NORMAN KERR, M. D., F. L. S.

TOBACCO INTERFERES WITH DIGESTIVE PROCESSES.

Tobacco impairs nutrition by interfering with the processes of digestion and assimilation. Pure tobacco is one of the most injurious and fatal plants known to botanists. The nicotine it contains is a deadly poison.— [Potter's Materia Medica.

TOBACCO CAUSES DYSPEPSIA.

The effect of all narcotics, of which nicotine is one, is to lessen the secretion of gastric juice, giving rise to dyspepsia. The salivary glands are excited by tobacco to oversecretion, and if the saliva is swallowed, it conveys the poisons to the stomach, causing irritation and inflammation of the mucous membrane.

—W. H. RILEY, M.D.

CIGARETTES HINDER DIGESTION.

Cigarette smoking injures the digestion, and it tends to check growth. It gives a lad false and silly notions, and it does not bring him into good company. —TITUS M. COAN, M.D.

Teacher.—"What is an octopus?" Small Boy (who has just commenced to take Latin), eagerly: "Please, sir, I know; it's an eight-sided cat."

NINETEENTH CENTURY NOTES.

II. THE YEARS OF REACTION.

ALL the world breathed more freely when it knew that the

"Man raised up to sway the world to do, undo,
With mighty nations for his underlings"

was far away on the island of St. Helena. The Revolution had apparently spent itself and to the men of the time was a great disappointment. They had been too much a part of it to see fully what it was to mean for the world. The nations, worn by two decades of war, eagerly welcomed peace and its pursuits. How peace should be secured became a vital question in international councils. The course of events in France had made statesmen and rulers of other nations distrust the ability of the people to govern, and to see in any expression of popular demands a menace to the public quiet and security. So when the diplomatists came together to agree on a settlement of European affairs they bent everything to this one end, the maintenance of peace.

Tallyrand, the clever French statesman, set forth the doctrine that only those governments were lawful which had been in possession of their power through "a long succession of years." This gave an excellent excuse for dismissing all the emperors, kings and governments set up by Napoleon. The Bourbons, Louis XVIII and Ferdinand VII, came back to the thrones of France and Spain, Pope Pius VII to the Papal states, while in Sardinia, Portugal, Holland, and many of the little German principalities, the old reigning families were restored, but without conditions or limitations to prevent oppression, or requirements to recognize the rights and needs of their peoples.

But the seeds of liberty had been too generally scattered during the confusion of the Napoleonic wars to permit rulers to disregard it for any length of time, as some of them very soon discovered. The world had moved since 1789. Promises, more or less sincere, of constitutional and national reform made especially to the states of Germany and Italy had won their loyal support in the struggle against the supremacy of Napoleon. They expected these promises to be kept. Well might the diplomats be warned:

"Conscious that the nerve
Of popular reason, long mistrusted, freed
Your thrones, ye Powers, from duty fear to swerve!
Be just, be grateful; nor the oppressor's cruelty
Reviving, heavier chastisement deserve
Than ever forced unpitied hearts to bleed."

While the restored monarchs were not required to grant reforms and wider liberties, several of them did so, but the progress of reform was still hindered and chiefly by the will and persuasions of one man, Metternich, prime minister of Austria. "In his mind," says Professor Andrews, "there was no difference between liberalism and anarchy. Each stood for independence of authority and the destruction of governments." Therefore seeing in the ideas of the Revolution a menace to public safety, Metternich wished to prevent not only Austria but all Europe from being influenced by these ideas. His purposes were helped on by what was known as the Holy Alliance, a league of nations formed soon after the fall of Napoleon, nominally for the purpose of "preserving peace, justice and religion in the name of the gospel," but really to support the reigning monarchs of Europe and to put down anything at all resembling a rebellion or revolution.

The agreement of the Holy Alliance was soon interpreted to mean that its members were bound not only to maintain peace between states but to interfere in the internal affairs of any state whose peace and stability seemed threatened by popular uprisings. Of Metternich's relation to the principle here laid down, Mr. W. R. Thayer says:

"Metternich found it all the easier to direct kings whose common interest it was to uphold the paternal system therein approved. He exerted his influence over each of them separately; if the monarch were obdurate, he wheedled his minister; if the minister were wary, he prejudiced the monarch against him.... To resist all change—that was his policy; to keep the surface smooth—that was his peace."

There proved, however, to be many things to ruffle this surface. Popular discontent with the restoration of the old order of things was not to be stifled by the wishes of a few statesmen of Europe. Italy, disappointed over the broken promises of national unity and independence, was soon seething with rebellion against Austrian rule and perfidy. Spain, humiliated by Napoleon, elated by the constitution and liberties granted in 1812, and plunged almost into despair by the restoration of all the signs of despotism by Ferdinand VII after 1815, soon showed her discontent openly, while France, ever restless, saw with great dissatisfaction the return of the monarchy accompanied by the nobles whose disposition toward popular rights had changed little in the years since 1789.

This discontent was fostered by the many secret societies which flourished throughout southern Europe, especially that of the Carbonari. Its members were originally political refugees in the mountains of Italy, and took their name from the mountain charcoal-burners. The societies as organized worked for different ends in the different countries, but all had before them the definite policy of opposition to despotism, or any return to the old conditions which the Revolution had swept away. Hence in

Italy, the Carbonari were against Austria and everything Austrian; in Spain, against the bad government of Ferdinand VII, and in France, against the restoration of the Bourbons. Individual liberty, constitutional government and national independence were their watchwords.

The first important outbreak of the Carbonari was in Naples in 1820. Spain had succeeded in forcing its king to accept the old constitution of 1812, and Naples, quick to follow her lead, at once demanded that a similar constitution should be granted by her king. To satisfy the people for the moment, the king promised the constitution, binding himself with a most solemn oath to support it, an oath which he never kept nor intended to keep. Austria, alarmed at what seemed the success of most dangerous liberal principles, called a European Congress, and joining forces with Russia, sent thousands of soldiers against unfortunate Naples, which soon fell and with it its constitutional government.

"To resist all change — that was his policy; to keep the surface smooth — that was his peace."

Meantime, affairs in the new world were not at a standstill. Taking advantage of Spain's weakness and bad government, her South American colonies, even before Napoleon reached the zenith of his power, began a struggle for independence that eventually stripped her of all her American possessions save the West Indies, Argentina, New Granada, Venezuela and Ecuador. Later, Peru, Chili and Mexico fought their way out to self-government. The "Holy Alliance," pleased with its success in repressing the Neapolitan and similar European outbreaks, was disposed to interfere also in this purely Spanish matter, but England who had never shown much cordiality to the principles of the Holy Alliance, soon made it clear that she intended to recognize the independence of the Spanish colonies, while the United States, now near the close of its first half century of independent life, boldly entered the international arena and by the Monroe doctrine shut out forever all attempts to make American territory a field for European interference. Thus was a whole continent dedicated to liberty and a long step taken away from the principles of Metternich and the Holy Alliance.

Perhaps no event in the decade following 1815 more stirred the world than the Greek struggle for independence which eventually drew to it the sympathies of a large part of Europe. Stirred by an intellectual revival which gave new life to the desire for independence, and exasperated by the atrocious cruelties of their Turkish oppressors, the Greeks rose in 1821, entering upon a contest which showed that all the old Greek spirit of bravery, hardihood and endurance, as told in epic and fable, still lived. What school-boy has not been thrilled by the familiar and stirring lines of Fitz-Greene Halleck:

> "Strike for your altars and your fires,
> Strike for the green graves of your sires,
> God and your native land."

or the other prophetic words of Campbell in a Grecian battle-cry:

> "Our land the first garden of liberty's tree,
> It has been and yet shall be the land of the free."

As it became evident that Greece was engaged in a life and death struggle, money and men from every nation began to find their way to her support. England in particular made no concealment of her sympathy. Gradually France and Russia, for reasons of their own, came to her side, and under their joint protection the independence of Greece was achieved. Prussia still stood by Austria, under the failing leadership of Metternich, and later Russia rejoined them, but the power of the Holy Alliance as an accepted principle governing European affairs was broken, and when Belgium, in 1830, sought to regain her independence from the control of Holland, the united action of England and France in refusing to help Holland subdue her, secured her independence so, that to quote words of a late writer, "the more liberal and progressive notion of non-intervention, supported by England and France, won its first great victory over the reactionary ideas of Austria and Prussia."

The year 1830, therefore, found the world far advanced in the path of progress from the point reached in 1815. Portugal, Belgium and Greece had been set apart to independence. France had overturned the absolutist monarchy

of the Bourbons, substituting the "citizens monarchy of Louis Philippe," while in the new world struggling but courageous republics were added witnesses of the truth that henceforth true liberalism was to be fostered and trained, not repressed and crushed by the great nations of two continents. The effort to shape the destinies of Europe after the patterns of the eighteenth century had failed.

"Revolution," says Goldwin Smith, "had rolled away the stone which the Holy Alliance had laid upon its sepulchre and had recommenced its march."

The period had been one of definite development in every direction. Industry and commerce were stimulated by new inventions and processes and the better transportation made possible by steamboats and railways. By 1830 slavery was nearing its end in England's dominions, and was receiving telling blows in America. Parliamentary reform was being urged in England to insure a more just system of representation, and the condition of the working classes was a problem already attacked. In the world of letters, America had passed the period when a Sydney Smith could inquire contemptuously, "Who in all the world reads an American book?" for Irving and Cooper had already charmed that world with their tales, while Bryant and Poe and Hawthorne had also appeared on the scene. England had her Scott, Shelley, Byron, Keats, Moore, Southey and Wordsworth; Germany her Goethe, Hegel and Humboldt.

The far-reaching results of the Reformation were beginning to be manifest. The true inspiration that it brought had been not lost, as its early friends had thought, but merely obscured for a time by the smoke of battle. Out of the shadow of apparent defeat was slowly but steadily emerging the clear light of a better day for the world. Material, intellectual, social and political gains each helped on the others, and all marked a step forward in the progress of humanity.

WHAT HE PETITIONED FOR.

A little Chicago chap who has a good deal of human nature in his make-up was saying his prayers before retiring one evening, and, after asking a blessing for the various members of the household, he concluded as follows: "And don't forget to bless Brother Jim and make him as good a boy as I am."—[Ex.

"Johnny," said the schoolboy's mother, "do you like your arithmetic?" "No'm; I think the influence of that book is unwholesome and depressing." "Why?" "Because it is full of horrible examples." And his mother was so stunned that she forgot to punish him.—[Ex.

THE MAPLE'S THOUGHTS.

THE thoughts of all the maples who shall name,
When the sad landscape turns to cold and gray?
Yet some for very ruth and sad dismay,
Hearing the north wind pipe the winter's name,
Have fired the hills with beaconing clouds of flame;

And some with softer woe that day by day,
So sweet and brief should go the westward way,
Have yearned upon the sunset with such shame,
That all their cheeks have turned to tremulous rose;

Others for wrath have turned a rusty red,
And some that know not either grief or dread,
Ere the old year should find its iron close,
Have gathered down the sun's last smiles acold,
Deep, deep into their luminous hearts of gold.

—ARCHIBALD LAMPMAN.

TRUE NATURE STUDY.

It is better to hunt with a camera than a gun; to study life in its freedom rather than to watch its struggles in captivity. In speaking of nature study for children, Henry S. Salt says:

"They should be taught to cage and imprison no animal or bird, but to respect the freedom and self-development of all other sentient beings, even as they claim the like privilege for themselves.

"Boys and girls should be early initiated into those habits of quiet watchfulness by which the true nature lover, as distinguished from the collecting scientist, is always able to win the confidence of nature, to learn the secret of field and forest with far more penetrating eye." A butterfly is but an ephemeral creature, but its little life was given to it by God, and it should not lightly be deprived of its freedom.

CARL'S WAY OF OBEYING.

My four-year-old Carl has been forbidden to eat ice. Imagine my astonishment when I found him sitting out in the back yard eating ice as fast as he could. "Carl, what did I tell you?" I demanded, with some impetuosity. "Mamma," he replied, "I'm not eating ice; I'm only sucking the juice."—[Cincinnati Inquirer.

BOBBY'S RAPID IMPROVEMENT.

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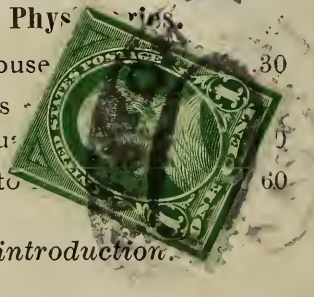

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A PERFECT DAY.

It is a day lost from some perfect June
And set within the middle of November.
It has the golden mystery of September,
And the blue skies of a warm summer noon.

There is a low wind singing an old tune,
Sung once by tender winds that I remember;
The soft, high sun burns like a crimson ember
Deep in the blue flame of the air . . . So soon
A gray and lonely morrow will arise,
This fair day well is worth the holding fast.

Behold! how dreamily the mute sea lies
Below; how seabirds lazily drift past;
And how the mountains, white for centuries,
Shine on the sky . . . O day, that thou might'st last!

—ELLA HIGGINSON.

THE EVANGEL OF LIBERTY.

"CHANGE is the watchword of this world," said Baron von Humboldt, the great naturalist.

From prolonged study of the natural world he saw no permanency in all its realm. The seed of to-day becomes in the to-morrows the plant, the flower, the fruit and again the seed. There is nothing permanent in nature. Her very rocks and mountains crumble, change, and take new forms under the action of the tooth of time.

Human life is as changeful. In the swiftly coming to-morrows the little children now in your homes will become full-fledged and leave you with the empty nest as they speed away to their own futures.

The very home which to you seems so secure is only temporary. It may be founded in love and godly virtue. Such homes are the corner-stones of the republic, nevertheless they are only for a time. The homes of to-day and their inmates will soon give place to other homes with other inmates.

Change likewise pervades society. "How changed our village, town, city, church, or social circle!" is a universal expression from people in middle life.

The same law holds among nations. New men and new measures rapidly succeed each other. As we look back over the centuries and jump the years after the fashion of history, nation seems to be treading on the heels of nation with reckless rapidity.

Do you say this is a gloomy presentation of an unpleasant truth? There is no gloom if we look at it rightly, and we need to do that to understand our times and our duty to them.

Nothing could be more pathetic than the utterance of the old Briton before the Christian religion had been taught his countrymen. History tells us that he said:

"So seems the life of man, O King, as a sparrow's flight through the hall when a man is sitting at meat in winter-tide, with the warm fire lighted on the hearth but the chill rain-storm without. The sparrow flies in at one door and tarries for a moment in the light and the heat of the hearth fire, and then flying forth from the other vanishes into the wintry darkness whence it came. So tarries for a moment the life of man in our sight, but what is before it, what after it, we know not."

The Christian's hope changes all this. In the light of that hope life is seen to be a development, and its changes to be in reality steps in a progress that lead the God-loving soul not out into the blackness of an unknown wintry night, but into an existence the glory of which eye hath not seen nor hath the poor human heart with its earthly limitations power to conceive.

From a superficial point of view, the passing of empires may seem a long line of funeral processions varied with the annals of the birth and growth that have preceded the death of nation after nation.

But looked at from the standpoint of deeper vision into the eternal order, all these changes, the uplifting of thrones, the overthrow of kings, emperors, and dynasties, and the building up of new powers, are seen to be parts of that progress which is marching through the centuries, all tributary to, and circling around the one central figure in all history, the God man, the author of all progress.

Look swiftly at a few of the events preparatory to his coming. They are germane to our topic.

The world sunk in the darkness of barbarism had to be made ready for Christ's kingdom, therefore Persia could not overthrow Greece two thousand four hundred years ago, because thereby the oriental darkness of the China of to-day with its Boxers, which Persia then represented, would have crushed out the Grecian civilization that prepared the way for him who said, "If thy brother smite thee on the one cheek turn to him the other also." Greece could not destroy Rome in her infancy, for the Cæsars with their eagles were destined to unite all people in one language and one nation, thus furnishing a wide-open door for the philosophy of Calvary. The vicious and cruel power of

Rome in turn was broken in the interests of that liberty which is God's thought for humanity. The Spanish Armada that would have destroyed England and Protestantism was dashed in pieces by the winds of heaven. Victor Hugo said of Bonaparte's almost realized dream of world conquest, "The great man had to go that the great age could come in." The great age is our age, our times to which all that has gone before is tributary.

Only a superficial mind will attempt to explain God, but he explains himself in the story of the years. This story shows that ancient and mediæval nations rose or fell just in proportion as they, unconsciously to themselves, opened the way for the philosophy of Calvary.

This philosophy implies the highest development of the individual as a child of God and heir to eternity. Slowly that idea has worked its way through the centuries. That men exist to fight the king's battles and pay the king's taxes, and women to be the mothers of more men to fight and pay taxes was the ancient and mediæval idea which has given place to the declaration on which our republic is founded, that "all men are born with an equal right to life, liberty and the pursuit of happiness."

It is a glorious thing to get one of God's great truths formally stated in a national document. Men may not fully grasp it in all its applications, but if you can only get it down in black and white, and into men's heads, human life will sooner or later adjust itself to it. That declaration of equal rights in our constitution is a part of the philosophy of Calvary. It is only another way of saying, "Thou shalt love thy neighbor as thyself." That it might have a place for its realization, an arena where it could be worked out, God saved this western hemisphere with all its boundless resources unoccupied until, two hundred and eighty years ago, those conscience men and women taught by Providence in the school of suffering were ready to come here and plant this republic.

The applied philosophy of Calvary has given all the people in these United States religious liberty, and men political liberty. But our fathers, brothers, husbands and sons will yet see that for one-half the population to make the laws which all must obey, but on which the other, non-criminal and equally intelligent half can have no vote, is not equal liberty but a relic of barbaric ages when power was exercised by the few over the helpless many.

The seething of the principle of equal liberty, applied with the scourge of war, freed this country from human slavery. The philosophy of Calvary will yet overthrow in our land the dominion of alcohol, which is a worse scourge than African slavery ever was.

In the light of the civilization of this age we need not hesitate to say that no man has the right to manufacture or sell a substance whose nature it is to injure and destroy the buyer. Such a thing is not allowed except in the case of alcoholic drinks. Severe legal punishment falls upon the man who knowingly sells diseased meat, poisoned milk or other like injurious foods. This is wise and as it should be. On the other hand, to allow a man to be legally enriched by the sale of what destroys his customer violates that principle of justice to all that holds human society together, that differentiates a community of civilized beings from savage hordes which prey upon each other.

In order that as temperance workers we may understand the problem we are trying to solve, we need to answer intelligently the question: Why is the manufacture and sale of alcoholic drinks made an exception to the rule governing civilized society, that the dealer shall not sell as beverages that which destroys and kills the buyer?

The first reason is the great difference between the effects on the buyer of the poisons in bad foods as contrasted with the poison in alcoholic drinks. Diseased meats and poisoned milk create in the consumer no craving desire for more, but a repulsive dislike; therefore, nobody to gratify a diseased appetite is trying to buy tainted meat, rotten fruits, or spoiled milk in spite of the law forbidding their sale. Public opinion condemns their sale and no man wants to buy them, hence there is no demand.

When the same is true of alcohol our work as temperance reformers will be accomplished.

But in the case of alcohol the situation is radically different. When taken even in small amounts, as in the lighter liquors, alcohol has the power to create an uncontrollable and destructive appetite for more, therefore, if any is used more is craved and the demand is thus established. Alcohol does not repel like bad foods. It woos and wins. Its power to bind its consumers to itself as devoted friends ever ready to defend it is one of its poisonous effects. Where such friends are in the majority public opinion defends it and majorities vote for its sale.

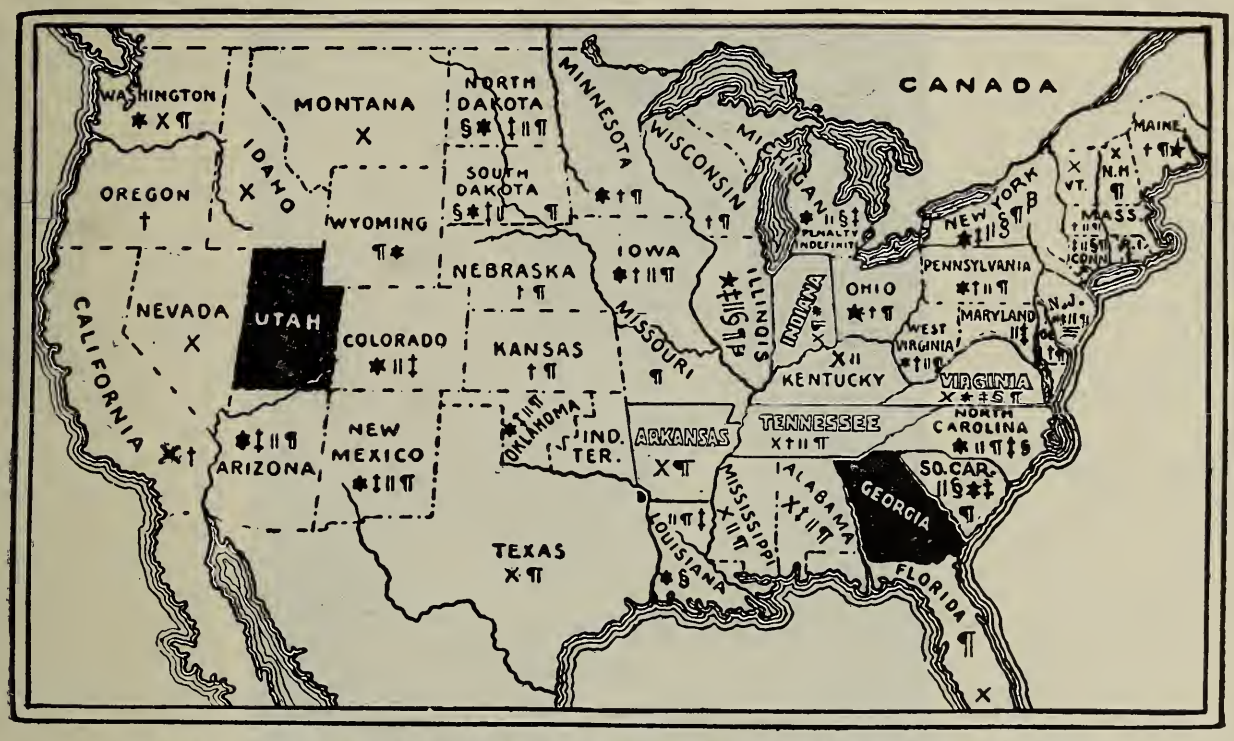
If we could only educate a generation before they begin to take alcohol at all to know and understand that it has this dangerous power, even when taken in small amounts, and to realize how unsafe it is to begin its use, we could in time get public opinion right, for the old drinkers die off fast and truth imbedded in the mind of the child sticks and influences after life. If the places of the old drinkers could be filled with intelligent total abstainers the reform would be accomplished. Such universal temperance education as will insure this is the only chance, the only hope of a permanent and radical reform for the temperance cause.

Other methods, God bless them and their advocates, are palliatives and needed to ameliorate the horrible results of this evil, but we must search for prevention. The hour demands it. The day is dawning for that higher civilization of which the saloon is no part and we must not miss our way in hastening its coming.

This is a government of the people, of majorities, and we can get nothing from legislation in advance of majorities. Do you say it is a government of parties, manipulated by politicians? But parties are powerless unless they represent majorities, or can, by withdrawing votes from one side, throw the other side into power; but if that other side is against our reform nothing is gained. The politician trims his sails to the popular current with the skill of the most expert mariner. Get all the people right and our reform will suffer nothing at the hands of either politician or party. No politician under our form of government can continue a long political life in the face of an indignant people, and no public man representative of the people can go far in advance of his constituents. He must either bring them up or they will retire him to the rear.

A commander in the civil war thought his color-bearer was getting too far in advance of the regiment in the face of the enemy, and called him back. Planting in the soft earth the staff from which waved the stars and stripes, the brave color-bearer answered, "This old flag never goes back. Bring the men up, bring the men up!"

TEMPERANCE EDUCATION MAP OF THE UNITED STATES AND TERRITORIES.



States in White have a Temperance Education Law. Those in Black have NONE.

EXPLANATION OF MARKS.—× The cross signifies that Scientific Temperance is a mandatory study in public schools.

* The star signifies that this is a mandatory study and that a penalty is attached to the inforcing clause of this statute in the state or territory to which it is affixed.

† The dagger signifies that the study is not only mandatory but is required of all pupils in all schools.

‡ The double dagger signifies that the study is required of all pupils in all schools and is to be pursued with text-books in the hands of pupils able to read.

‖ The parallel indicates that the study is to be taught in the same manner and as thoroughly as other required branches.

§ The section mark indicates that text-books on this topic used in primary and intermediate schools must give one-fourth or one-fifth their space to temperance matter, and those used in high schools not less than twenty pages.

¶ The paragraph indicates that no teacher who has not passed a satisfactory examination in this subject is granted a certificate or authorized to teach.

〓 Three lines indicate that text-books on this topic shall give full and adequate space to temperance matter.

β The beta signifies that a definite number of lessons for each school year has been made compulsory.

There are 16,000,000 children of school age in the United States under Temperance Education Laws.

When we have brought the people up the politician will be all right.

In repressing wrong in our republic everything depends upon the people. What progress has been made in our country in bringing the people up on this vital question? The temperance education map shows that with the good hand of our God upon us, the people of this entire country, except in Utah and Georgia, have enacted laws which require the nature and

effects of alcoholic drinks and other narcotics, as a part of the study of hygiene, to be taught in the public schools.

It is eighteen years since the first of these laws was enacted. In states where the strongest statutes have been longest in force the good result of this study is most marked. The facts taught in the schools that alcohol injures brain and brawn and thus diminishes trustworthy ability is recognized to-day by all forms of business. To-day railroads will not employ a man who patronizes the saloon when either on or off duty. He is not wanted in bank, shop, manufactory, store or any form of employment. All this has come about since we began the agitation twenty years ago, for scientific temperance. Trade and commerce quick to scent danger to profits, have caught the truth carried home from the schools that alcohol injures working ability.

"From the warm concave of that fluted note
Somewhat half song, half odour forth did float
As if a rose might somehow be a throat."

The brewers at their annual national meeting in June, 1900, at Atlantic City, New Jersey, report their industry as "staggering to its own ruin," and the position of the brewing business "as a desperate one." They report further that in a season of prosperity rarely equalled in the economic history of our country, the brewing business instead of responding as always before with like commercial prosperity, is declining; that their output was nearly 1,000,000 barrels less during the last fiscal year reported than the year before. The year before that, they reported five breweries in one city sold at sheriff's sales. They charge this decline to the war tax. But evidence points to the fact that the people are in reality drinking less. These are only straws but they show the trend of the current. They are results we might expect from the educational training going on through the schools over our country.

It is estimated that there are $957,000,000 invested in the liquor interests in this country. That this vast capital should seek to protect itself against whatever hurts the sales of its products is to be expected. Hence we must not be taken by surprise at opposition. I marvel that there has not been more opposition to this scientific temperance instruction movement.

Every reform has had to breast opposition, and by it has grown and gained. That wise old philosopher, Marcus Aurelius, said, "That which seems to oppose only helps the right, and that which stands in its way hastens a successful end."

Discussion is born of opposition, and in discussion error is exposed and truth, set in new light, cuts its way to that human conviction which results in action. Apathy and indifference are the signs of danger.

In nineteen states and territories the law requires the study of temperance physiology to be pursued with text-books in the hands of pupils who use text-books in other studies. Congress was the first legislative body to require, in 1886, these text-books for pupils. There was then but one set of books we could indorse. But there had been rushed upon the opening field from twenty to twenty-five books so loose and deficient in temperance teaching that we could not indorse them. If we had we never should have had better books, but meantime there was much to endure of unjust accusation and impugning of motives from those who failed to see why books that denounced drunkenness but said nothing of the danger of beginning to drink should not be indorsed.

Launch new truths that rebuke popular customs, stand by them, push them, not only refuse to retract or modify, but hold those truths aloft and urge their application, and many will accept, but enough will oppose to give you a taste of martyrdom.

"Count me o'er earth's chosen heroes,—
they were souls that stood alone,
While the men they agonized for, hurled
the contumelious stone."

(Continued in December Journal.)

Primary Lessons.

THIRD YEAR.

PARTS OF THE BODY.

A ROMAN vase was once on exhibition which at first sight delighted the beholder with its exquisite coloring and graceful lines. But a nearer glance revealed imperfections. Some careless hand had shattered it into fragments, and although these bits had been skilfully put together the cracks and seams could not be entirely hidden.

The most marvelous piece of workmanship in the whole world is the perfect human body. When its every organ is sound and in proper working condition, it challenges and holds the admiration of the sternest critic. But if it be marred by disease, by neglect of health laws, by intemperance, the scars will remain and it is at best but an apology for a man or woman.

Sooner or later every child must learn this lesson for himself in the costly school of experience, but the truth may not come home in time for him to profit by it. This is the great reason why hygiene and temperance have been early introduced into our public schools — that the child may know how to direct his activities into right channels, and conserve his powers of body and mind while they are still unharmed.

(1)

USES OF THE DIFFERENT PARTS.

The third year primary pupil needs to get some idea of the body as a whole. He knows that he has a head, trunk and limbs, that he can see and hear; he must next realize that he can use arm, or leg, or head, not because each is complete in itself, but because it is a part of him. The main work in physiology during this last year in the primary grades should be to show the connection between each part of the body studied and the individual as a whole.

The child's first question about an object relates to its use. "What is it for?" he queries. Direct this spirit of investigation toward the parts of the body, and show that each has some special work to do in order to make up the perfect whole.

THE HEAD.

If we were to draw a person's picture what part should we begin with? Get opinions from the class as to why the head is the most important part of the human body. Write on the board the question, What can we do with the head? Ask every one to give an answer and write the different statements below the question.

How do we find out what is going on in the world? Which of the five senses are found in this part of the body? Have the class draw a head in outline showing the position of the different sense organs. Call upon various ones in the class to state what each of these organs is for, and what it does for us; what we learn through our eyes and ears; what we can find out only through the senses of taste and smell; and with what parts of the head we can feel.

Ask the class to name parts of the head which can do more than one kind of work. What do we do with the nose, for instance, besides smell? with the mouth besides taste?

What parts of the head have not yet been named? Point to each—the skull, crown, back, sides, scalp, hair, ears, face, forehead, eyes, temples, cheeks, nose, mouth, chin. Have a list made of these parts and call for reasons why each is needed. As the different parts are given include them in the blackboard drawing until the sketch of the external head is complete.

Have the children pass their hands lightly over the parts of the head. Which parts are hard to the touch? Which parts soft? Help them to think of reasons for this.

Consider the shape of the head. Why is a rounded surface less likely to be injured than one with sharp corners? What do the hard outside parts of the head protect?

Help the class to compare the human head with that of one or more of the lower animals. Have them find how the two are alike; how they differ; how each is exactly right in its place.

(2)

THE NECK.

Show the picture of a frog. Ask how its head is joined to its body; then in what different way our heads are connected with our bodies. Form an isthmus on the sand-map and explain why this is called a neck of land. Show the importance of the neck in allowing the head to move freely. Have the class find in what ways the head can be moved. What other animals besides the frog can move the head very little or not at all? What animals can move the head less freely than man? more freely?

Have ready pictures of all the different animals you can find. Call attention to the neck of each. Let the class find which have necks larger and thicker than man's; which are longer; which are more movable; which less so; which are of a different shape. Show how each is suited to the animal it belongs to.

Have the class find the different parts of the neck — the throat, sides and nape. Show a chicken's neck from which all the meat has been removed, and call attention to its jointed structure. Help the children to think of reasons why a person's neck should be jointed rather than made in one piece.

(3)

THE TRUNK.

What is the largest part of the body? Ask the class to describe the body trunk, then the trunk of a tree. Explain that one meaning of the word is the main part of anything; then ask why this name is given to a part of the body.

Help the children to decide what the trunk is for. Ask where the food we eat goes. Show the location of the stomach.

Have all rise and place their hands on their chests while they take several deep breaths. Help them think of the reason why the chest continually rises and falls. Give the name of the parts of the body which receive the air breathed in, if the word lungs is not already known.

Have them find where the heart is. Tell the class its work is to send the blood to every part of the body, and that the blood carries with it the food and air which each part needs. Call attention to the fact that no one could live without food, or air, or if his heart should stop beating. Ask what a trunk is used for in traveling, and explain that a second meaning of the word trunk is a box or chest in which something is kept. Have the class name again the parts of the body which are found in the body trunk and explain why each is precious and needs to be kept in a safe place.

Ask each pupil to name and locate from the chart or his own body some part of the trunk, until the shoulders, chest, abdomen, breast, back, sides, waist and hips have been found.

Show by an illustrative drawing how the diaphragm forms the floor of the chest and the roof of the abdomen. How is this like a two-story house? Which of these stories has a bony covering before and behind? Which only behind?

Have the class find the hard parts of the trunk; the soft parts; then think of reasons for each. Have them bend the body and find whether the back-bone is made of one bone or many. How do these twenty-four small bones help us bend the body in any direction?

Call attention to the way in which the human trunk differs from that of animals. Show how the trunk is held upright in man, and what advantage this gives him. Help the pupils to notice what animals can bend the trunk more easily than man; what ones less easily. How nearly erect is the trunk held in the different animals the class have seen?

(4)

THE UPPER LIMBS.

Make a blackboard list of ways in which the class have used their hands and arms during the day. Call for other ways in which these parts of the body may be used. Show the importance of these parts also, by asking the children what they could not do if they were without hands and arms.

Explain how the shape of the upper limbs fits them for their work. Have the class find which parts of the arm can move most freely. Ask them to imagine the hand in one piece, and then tell how the separate fingers help to make it more useful.

Ask what parts of the dog correspond to our upper limbs. What can he do with his fore legs and paws which we can not with our arms and hands? What can we do which he can not? What things can he do better than we? What can we do better? Make a similar comparison between the upper limbs of other animals and those of man. Why can we train our hands and arms to be more skilful and valuable than the corresponding limbs of dumb animals?

Have the class find and name the parts of the upper limbs — shoulder, arm, elbow, forearm, wrist, palm, back, fingers, knuckles, ball, tips, nails. Why are so many parts needed? Why are there more parts in the hand and forearm than in the upper arm? Call attention to the way the thumb is placed in the hand, and the great advantage this gives man over the lower animals.

Compare the finger-nails with the claws of animals and show how the difference in the way the hand is tipped affects what it can do. Ask what kinds of work require powerful arms; what kinds call for skilful hands and a delicate sense of touch.

(5)

THE LOWER LIMBS.

Hold up the picture of a locomotive or some very large machine, and beside it the picture of an ant or tiny insect. What are some of the things which the ant can do which the engine can not? Help the class think how animal life differs from vegetable in its power to move from place to place, and how it differs from objects which are without life.

What parts of the body do we use in moving about? How much can we do with our lower limbs? Make a blackboard list of such motions and let the class illustrate the whole or a part of them.

Compare man's use of legs and feet with that of different animals. Find what animals can run most swiftly, leap farthest in proportion to size, have the strongest limbs. In what ways are their legs superior to man's? How are they inferior?

Name the parts of the lower limbs, pointing out the location of each — hip, thigh, knee, leg, shin, calf, ankle, foot, ball, toes, joints, nails. Find how these parts correspond to the upper limbs; how they are different. Show how the work each must do determines its shape, size and strength.

Have the class find the joints in the upper limbs and compare with those of the lower limbs. Which can move more easily? Which are stronger? Give a reason in each case.

Compare the legs of different animals as to number. How many has the fly? the spider? the centipede? the snail? Ask all to notice insects and the different forms of animal life they see during the day and find how the number and size of their legs are suited to their mode of life. Explain how a fly can walk upside down; why a hen's toes are separate and those of a duck joined together; why a bear can climb a tree, while a dog can not; why a rabbit can jump farther than a cat.

(6)

THE PARTS AS A WHOLE.

Show the class a piece of coal or stone. Break it and let them find that all the parts are alike, that each is just as truly coal as the whole lump. How is this different from the way our bodies are made up?

"A lovely being, scarcely formed or moulded,
A rose with all its sweetest leaves yet folded."

Show the picture of a boy or girl, and have the parts of the body named and written on the board — head, neck, trunk, limbs. Are these parts alike or different? How are they unlike? Of how much use would any one of them be apart from the whole? Which parts are necessary to life? Which would we want to spare?

Help the class to think of animals whose bodies have fewer parts than man. What part is lacking in a fish? What parts in a snake? in an oyster? How is man superior to these animals?

Bring out the ways in which different animals are more expert than man; how the horse excels him, the elephant, the robin, the grasshopper, the squirrel. Ask the class in each instance to show why man fails to do some things as well as these animals can do them.

Have the children make a list of things done in your own town which only man could perform. Call attention to the buildings he has erected, the railroads built, rivers bridged, machinery made, and ask whether the work of man or of the lower animals is greater and more valuable to the world.

Name different kinds of work familiar to the class and have them tell what parts of the body are needed to do each. What kinds of work require most skill? most strength? What kinds require the use of only a few parts of the body? What kinds call every part of the body into play?

Compare man's body as a whole with that of the most intelligent animals. Show how man's power to stand upright gives him pre-eminence; how this advantage is increased by the shape and arrangement of his hands and feet; and how, above all, his mind fits him to rule.

(7)

TRAINING OF THE BODY.

Ask the children to find how a fine colt is trained for racing. Have them bring into class all the facts they can gather in regard to the way such an animal is fed, exercised, guarded from exposure, and trained. Why is nothing left to chance?

Show that the same care is given to the training of a boy for football or a rowing match. He is not allowed to do anything which might lessen his chances of success.

Write on the board names of well known musicians, artists, mechanics, or any one who has done really skilful work in some line. Ask what parts of their bodies needed to be well trained in each case. How did it happen that these people surpassed others in their profes-

sion? Perhaps they had great talent to begin with, but this would have done them little good if they had not tried continually to do still better work.

Find what the pupils in your class are planning to do when they are through school. How many are training to be fine men and women? This is worth working for far more than eminence in football.

Ask why people never begin to train an old horse for racing and why elderly people do not enter athletic contests. Bring out the fact that training to be effective must be given when the muscles are limber, and that every one who wishes a really well trained, flexible body can have it only by beginning to take care of it while he is young.

(8)

ESSENTIALS IN DEVELOPMENT.

Help the pupils to get a clear idea of what is meant by a well trained body. Refer to some man and woman of fine physique whom they know. Question to bring out the reasons why such people are to be admired. How do they stand and sit? How does their walk differ from an awkward person's? Are they able to do much or little. Are they sickly or strong and well?

The next thing to think about is how to get a well developed body. Natural advantages are a great help but they can not make up for lack of training. General Grant was an undersized boy but he looked every inch a soldier because every bone and muscle was well trained.

Write the word food on the board as the first thing needed if one means to have a well built body. Ask why we must eat; what food does for the body; why it should be well selected, well cooked; why one should eat neither too much nor too little, and at regular hours rather than at any time. Have the children find why a good farmer always follows certain rules in feeding his stock. Why is the same care even more necessary when the best development of a child is at stake?

Discuss similarly in class the best way to dress and exercise to give one a fine form. Show the need of an abundant supply of sunshine and pure air, of sleep, work and play to help bring about this result.

Call attention to the correct shape of the body. Show how tight clothing may change this shape and prevent growth, and how it weakens the muscles. Emphasize the need of warm clothing in winter and in variable climates.

Ask the class if there is any part of their bodies they would be willing to have remain small and weak, and help them devise modes of exercise which will develop all parts alike. Explain how all food, our fuel, and even every form of life is finally dependent upon the sun and could not exist without it. Show that we need to be in the sun and live in sunny rooms quite as much as plants do, in order to grow properly.

Bring out the fact that pure air is as necessary to the body as food and that we can not live without it. Give frequent breathing exercises to show the children how to breathe properly, and talk over with them the best way of keeping the home supplied with pure air.

Show the impossibility of having a well developed body unless enough time is taken for sleep in order to make good the daily loss of strength through work, study, play and exercise of various kinds.

Notice the different games and tasks which your pupils engage in during the day, and help them to think how each develops the body. Find whether any parts of the body are thus being built up at the expense of others, and suggest plays and tasks which will right the mistake.

(9)

HINDRANCES TO DEVELOPMENT.

Find what pupils have pets at home. Would they ill treat them in any way or allow any one else to hurt them? Show how much more valuable they are than their pets, and the far greater loss it would be to parents and friends if their health were to suffer.

Help them to understand why they can not expect to grow well if they live on poor food or that which is improperly cooked; why lounging and stooping over their work will spoil the form; why living in close stuffy rooms will produce frequent colds; why carelessness about bathing will produce poor complexions, and rough, chapped hands and faces; why late hours will keep them from having clear brains and strong bodies; why tea and coffee will make them cross and nervous.

From the quotations given below make a list of the ways in which tobacco and alcohol hurt the growth and produce weaklings instead of men and women. Notice especially the effects of these poisons upon the parts of the body they are most interested to have fine and strong — upon the muscles, the heart and brain, the senses, and upon height, growth and strength.

Show the class a lovely bit of statuary, a watch, or a fine piece of china. Why are we careful to keep such precious things from being marred or injured? Could they not be put together again if they should be broken?

Which is better, a strong, healthy constitution, or one broken by wrong-doing and disease, even if the latter can be patched up after a fashion?

Show that every one who really wants a fine body, a clear brain and steady nerves will be willing to live in such a way as to make sure of these priceless possessions.

AUTHORITATIVE QUOTATIONS.

HURTFUL DRINKS.

Neither tea nor coffee is a fit drink for children. It is more than probable that the common use of these narcotics during childhood and youth is one of the factors which in later years produce the army of neurasthenics. It is stated by travellers in Brazil that the free use of coffee by the inhabitants is bringing about an evident deterioration of the people. This is conspicuously shown in their complexions and their nervous systems. By irritating the nerves that govern the heart's action, coffee quickens the circulation, and in many cases induces cardiac palpitation. Coffee acts upon the nervous constitution of some persons the same way as alcohol.— CHAS. H. SHEPARD, M.D.

ETHYL ALCOHOL AND NICOTINE VIRULENT POISONS.

Ethyl alcohol, the only active ingredient in fermented and distilled drinks, and nicotine, the active agent in tobacco, in their pure state are described by all chemists, pharmacists, and toxicologists as most virulent poisons, speedily destructive to both animal and vegetable life, even in moderate doses.—[Journal of Inebriety.

ALCOHOL RETARDS GROWTH.

Alcohol used continuously retards growth, diminishes vitality and prevents development. Drinking parents have deficient vitality and are unable to transmit to the next generation full normal vigor. The last and highest formed element of brain power — consciousness — is the first to suffer from alcohol. Hence drinking parents can not have children with full normal consciousness. This faculty will be wanting or feebly developed. This is the rule to which the exceptions are rare.— T. D. CROTHERS, M.D.

"In the very May-morn of his youth,
Ripe for exploits and mighty enterprises."

DEGENERATING INFLUENCE OF ALCOHOL.

That the alcohol in half a pint of beer or a single glass of whiskey lessens the rapidity of nerve transmission, mental perception, acuteness of the special senses, and muscular strength, has been abundantly demonstrated by the application of instruments of precision. That the same amount of alcohol deludes man with the impression that he is stronger and more active when he is actually doing less, is a fact familiar to all who have given attention to the subject. The only rational conclusion, then, is that the degenerating influence of alcohol upon man, physical and mental, commences with the beginning of its use, and increases in proportion to the quantity used and the length of time it is continued.—[Journal of Inebriety.

EFFECT OF ALCOHOL ON THE MUSCLES.

In case of the non-fatigued muscle Professor Frye found in every case that the effect of alcohol was injurious. Even beer and very dilute solutions of alcohol were found to diminish the height to which a lifted weight could be raised. In the majority of persons the amount of work which the muscle was able to do in a given time was decreased. A fact noted as remarkable was that nothwithstanding the actual diminution in the amount of work performed, the person experimented upon was under the impression that the weight lifted was lighter, and that the work was more easily accomplished.

—J. H. KELLOGG, M.D.

FATTY DEGENERATION CAUSED BY ALCOHOL.

Fatty degeneration is in many cases the direct result of the long-continued use of large doses of alcohol, and when once the process of degeneration has been set up, even small doses appear to exert a further injurious effect upon the altered muscle. — G. SIMS WOODHEAD, M.D.

ALCOHOL INJURES MIND AND BODY.

It has been proved over and over again that alcohol has a baneful influence on both mental and bodily health, and the nation is made up of individuals. If it increases disease and crime among those who use it, it must correspondingly increase it in the nation.

—GEO. W. WEBSTER, M.D.

CIGARETTES DWARF MENTALLY AND PHYSICALLY.

Cigarettes depraves the morals of boys, weakens their minds and destroys their bodies. —C. H. CHAPMAN, President University of Oregon.

I do not believe there is an agency more destructive of soul, mind, and body, or more subversive of good morals, than the cigarette. The fight against the cigarette is a fight for civilization.— Rev. F. W. GUNSAULUS, President Armour Institute, Chicago.

Physiology and observation both lead to the same conclusion, that cigarettes are harmful to the youth; that they not only dwarf the boy mentally and physically but make a criminal of him. The sale of cigarettes to a man of matured age might be excused upon the ground that he is capable of judging for himself, and if he desires to die by slow poison, let him do so; their sale to young men should be severely condemned and prohibited, and to a boy under sixteen made criminal, as is the sale of any other poison.— Hon. GEO. TORRANCE, Gen. Supt. Illinois State Reformatory.

TOBACCO LESSENS MUSCULAR POWER.

Tobacco affects the nerves controlling various muscles, causing a gradual loss of muscular power and resulting in paralysis.

The pulse of every habitual user of tobacco will show irregularities in the heart's action. Tobacco-users frequently suffer with palpitation, angina pectoris, and other symptoms of derangement of this organ. There is a disease of the heart resulting from tobacco poisoning known as "narcotism of the heart." Statistics show that about one-fourth of those who smoke have this condition.—W. H. RILEY, M D.

TOBACCO INJURES THE HEALTH.

The effects of alcohol are organic and fatal, and, while tobacco is more subtle and indirect in its processes and slower in manifesting its effects than alcohol or other poisons, it produces results permanently detrimental to health and vigor of the individual, and also clearly shows its deteriorating power by transmission to the third and fourth generation.

CHARLES H. SHEPARD, M.D.

THE MAN WITH A HOE.

HE is not Professor Markham's man. He is another man, the man who "hoes his own row." He does not "lean upon his hoe;" he uses it. Nor is "the emptiness of ages in his face;" but grit, grip, enterprise, push, ambition, eagerness. He is not "stolid and stunned, a brother to the ox," but the liveliest piece of flesh and blood in the world. He intends to do something and be something and he goes at it with might and main. America is full of him and always has been. He has pushed his way from the bottom to the top along every way and walk of life. He has chopped and grubbed and hoed in the wilderness; he has followed the plow and read while the horses rested, and studied at night. He has gone behind the counter at a dollar and fifty cents a week and made himself a merchant prince. He has worked his way through college, doing chores, pushing wheelbarrows, milking cows, chopping wood, making fires, taking care of horses, digging gardens, anything, everything to get on. A judge who has been on the bench of the supreme court of Illinois twenty-seven years, dug post holes for six cents an hour when in college. A United States senator used to drive an ox team.

But it is useless to mention instances, for four out of five of the men of success the country over began with nothing or next to it, and have worked their way up. They have made themselves, and in making themselves have made the country. Without them the America of to-day would not be. With them it has eclipsed all dreams.

As an object lesson this man who hoes his own row is worth ten thousand times as much as the man who is "dead to rapture and despair, a thing that grieves not and never hopes." The "dead" man is not our kind; he does not belong to America's free air, or to the stir and impulse of her mighty life. Of all things the young man must not think that he is in the grip of the invincible, that "on his back is the burden of the world," and that he can only be a pack-horse to the proud and the mighty. He must hold fast to the fact that the hardest thing to put down, keep down, and crush, is a man, a man with the stuff in him, a will to do and be.

If the young men of the country believe that the system of things is closing in upon them, they must not whine or creep down into their boots, but fight the system. "Quit you like men," is a cry that has been ringing across the world since the days of Moses. That resolute Jew wrested himself and his people out of the hands of the Pharaohs. If the spirit of the Pharaohs is creeping in upon the land, and the mighty man is becoming an oppressor, let the spirit of Moses come upon the young men. They are voters, the rising power, the makers and owners of the future. There is not an oppression which they can not end, nor an oppressor whom they can not crush at the polls. The hideous greed, the perversion of power, the encroachments of the plutocracy and all the rising dangers of the hour, are things that they can sweep from public place, and keep America in the future what it was in the past, the freest and best place in the world for the man with a hoe.

What we want, what the times demand, is not a man leaning upon his hoe and looking hopelessly upon the ground, but a young man with the old fire in his eye, the old spirit in his heart, and the mighty resolve that conquers.

—[The Advance.

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INDIAN SUMMER.

Upon the face of one whose hour was nigh,
I saw the light of youth return once more;
So when God called the withered year to die,
Before her spirit passed, June's smile she wore.

CHARLES HANSON TOWNE.

THE PENALTY OF INDULGING IN ALCOHOL.

ALCOHOL is neither a food nor a tonic; it is an excitant and depressant. Like all poisons it first irritates and then paralyzes. It wastes vitality by first abnormally rousing and then abnormally depressing sensation and emotion.

Alcohol abuses and weakens the nervous system, thus causing a predisposition to all diseases and aggravating them. Alcohol is the parent of the neuroses-hysteria, epilepsy, chorea, neuralgia, neuritis, cramps, delusions, hallucinations, dementia, and all those nervous disorders which have no distinctive pathology, and rest upon a peculiar irritable state of the nervous system. It likewise prepares the soil for tuberculosis, diabetes, Bright's disease, cancer, and other diseases dependent upon defective innervation and impaired nutrition.

Alcohol irritates the mucous membranes and structure of organs, leading to chronic inflammations with fibrous changes, contraction and hardening, or tissue break-down with hemorrhages, pus-formation and blood poisoning. In all cases the liver, lungs or kidneys become organically diseased sooner or later, and untimely death is the frequent result.

The man who dallies with alcohol, permitting himself to take an occasional drink, is almost certain to form a pernicious habit which he is powerless to break, and which slowly and insidiously robs him of his reserve vitality. He may not see or feel the draught on his forces, because no emergency occurs to test his strength, but the drain is going on all the same. This gradual leakage of vitality, if wisely invested in right habits and good living, would add twenty years to his life-span, and enable him to hand down a constitution untainted by vice or physical infirmity.—[Medical Brief.

PERIODIC WAVES OF INTEREST.

OBSERVERS tell us that for the last century in our country interest in the temperance cause has been periodistic. They tell us too that these periods of interest, of realization of the dangers of alcoholism and sympathy with the sufferings of its victims have come in waves, with intervening times of profound indifference when men scoff, ridicule, and oppose both the reform and the reformer, and the mass of the people take no interest and will not listen to any discussion of the subject.

I read the other day with keenest appreciation this passage from Victor Hugo:

"It is one of the poignant anxieties of the thinker to see the shadow on the human soul and to feel in the darkness sleeping progress without being able to awaken it. But the man who despairs is wrong; progress infallibly reawakens, and we might say it moves even when sleeping for it has grown. When we see it upright again we find that it is taller."

"We are now passing through one of the decadence periods, the time of the scoffer in the temperance cause," says that observing statistician, Dr. Daniel Dorchester. Admitted, but the fact that opposition has arisen to this temperance education movement is a sure sign that the cause is growing while it seems to sleep, and that when it rises it will be taller with the colossal vigor of youth and numbers and able to accomplish that which you and I have longed to do, but failed because we were in the pitiful minority that can only protest and work for the larger day.

As I recall the record of history I see that when the hour strikes for the spread of a truth against evil no one can stop it. The futile rage of opposers sinks into insignificance before the calm, irresistible omnipotence of truth as it moves on through human history with something of the all-conquering power of the Son of Man.

The great stone at the door of the sepulchre, the seal, the Roman guard, the mighty power of Cæsar could not suppress the truth that the crucified Nazarene was God, the Saviour of men. And since that hour truth that saves in spite of opposition has had the right of way. Alcohol has poisoned life at its fountain. The story of its ruin everywhere is enough to move a heart of stone. To teach truth that warns the young against commencing its use is God's plan. His methods never fail.

Therefore, with a song of victory for what has been accomplished, and undaunted, unfaltering faith for the future we press on, standing steadily for the truth, the whole truth, and nothing but the truth for the children of to-day who will thereby be fitted to deal intelligently with the alcohol question which waits their solution.

SEVENTH OR EIGHTH YEAR.

THE MUSCLES.

IN these days much is said in disparagement of the class of immigrants which throngs our shores. They are driving out better men and lowering the standards of decent living, is the charge against them.

The hopeful side to the picture is the willingness of these newcomers to work. Perhaps it is no pleasanter to them than to other men to sweat and stifle in crowded tenements, but they want, what they have never had before, a chance, and they are willing to pay the price.

The sternest competition has its advantages; it stimulates to effort, it brings out the best in man. If the better born and better taught native citizen is unwilling to work shoulder to shoulder with the foreigner, sharing his squalid degradation, he may use brain as well as muscle and create new fields for himself. The industrial battle is more and more to the strong, and success in the long run will crown the fittest and best deserving.

Everything combines to foster the pride of the American youth and to lead him to consider himself as well as his country invincible. He has yet to learn that a man's foes are they of his own household, and that in spite of birth and training and position he will fail to hold his own, unless he so orders life and conduct as "to expand to his full growth; to resist all impediments; cast off all noxious adhesions, and show himself at length in his own shape and stature, be these what they may."

STRUCTURE OF MUSCLE.

Some knowledge of the structure of the body is necessary to insure its best development. Help the class to find by experiment and study what muscle is.

Boil lean beef and pick the fibres apart. Why is it not solid? Show how blood-vessels and nerves are connected with muscle. Notice the difference between a muscle and a tendon.

Examine striate and nonstriate muscle under the microscope. How do they differ in appearance? What different work has each in the body? Where is each found? Explain the structure of the heart muscle. Find the important muscles of the body and decide of what kind of muscle each is made.

Notice how the different muscles are attached to the bones. Why are they not in an entirely separate layer by themselves? How do the ends of a muscle differ in structure from the central portion? What is the explanation of this difference?

ADAPTATION TO WORK.

Study the outer layer of muscles from charts or the illustration in a good physiology until all can draw from memory the human form as it would look if the skin were removed.

Notice the size and arrangement of each group of muscles. Ask the pupils to point out muscles which are long and slender; others which are broad and thin; those which form a ring; those which are fan-shaped; rounded; those with two heads or points of attachment; those with three.

Have all find the longest muscles in the body, the shortest. How does the size and shape of the arm muscles vary from shoulder to wrist? Why are not all muscles under the control of the will?

Study the variety of movements which the body must execute. The legs and arms are capable of hundreds of different motions; the eyes, lips, tongue and head have each a distinct set of movements; the heart never stops beating, and the muscles in the alimentary canal and the walls of the blood-vessels must not relax their efforts. How are all these motions possible?

Show how the various shapes of the muscles exactly adapts them for the many kinds of work they must do. Explain the lever system of the body and why it is needed. Find which muscles are moved through its mechanism, and how the motion takes place.

TRAINING OF MUSCLE.

The best bodily training comes from sports if wisely directed, and the intellectual and moral value of such is almost as great as the physical.

Lead your pupils to see what proper training of the muscles is, and how much is involved. They all know that severe exercise, mental or physical, should not be taken directly after eating. Do they know why?

Show how exercise enlarges and strengthens the muscles, and how it increases the flow of blood to these organs. What difference does this make? How are the muscles starved by a poor diet, or by an insufficient supply of oxygen? Trace the connection between the extra blood supply brought to the muscles by exercise and the work of the heart and lungs. What is the danger to these organs in taking excessive exercise?

Explain how exercise increases the number of waste particles in the muscles, and how this is one cause of fatigue. How does rest remove this fatigue? How much rest is necessary?

ABUSE OF THE MUSCLES.

Show that a poorly developed body is a deformity and to be guarded against as such; that excessively strong leg and arm muscles and a weak heart or lungs do not belong together, nor do well developed lungs and bust correspond with contracted waists.

Study in detail the effects of narcotics upon muscles. Find what a poison is; how it differs in nature and effects from a food; which is necessary to muscle development; which is harmful?

Show, by reference to expert testimony from all sources, how the poisons in alcoholic drinks and tobacco affect growth, strength, the nervous energy which one must use in moving his muscles, the heart which supplies the muscles with food and oxygen, one's capacity for any kind of work. Above all, impress upon your pupils the great mistake of thinking that a cigarette now and then, or an occasional drink of beer does no harm to the muscular system or any other part of the body. Professor James, the psychologist expert, says: "Every small stroke of virtue or vice leaves its ever-so-little scar," and the slightest indulgence in whatever degrades by so much fetters the soul and keeps it from reaching its true stature.

"The manly part is to do with might and main what you can do."
"The field is not far off where we must give the world a proof of deeds, not words."

AUTHORITATIVE QUOTATIONS.

ALCOHOL ALWAYS CRIPPLES.

Alcohol in any shape, and in any dose, cripples a man physically, mentally and morally. It wastes his life forces with prodigal hand, lessens his chance of a long life, depraves and degrades him. Alcohol enslaves a man, and reduces him to the brute level where he does not care, because he no longer realizes his condition.—[Medical Brief.

ALCOHOL PREVENTS GROWTH AND DEVELOPMENT.

One experimenter states that alcohol, either in large or small doses, retards, prevents and is destructive to normal growth and development, and lowers working power.—V. D. MILLER, M.D.

ALCOHOL LESSENS MUSCULAR STRENGTH.

Alcohol, after a most careful physiological investigation, has been declared to be not a stimulant but an anæsthetic, a depressing and paralyzing agent under all circumstances. It lowers the temperature and the pulse-rate, diminishes the senses, lessens the muscular strength, impairs the memory, slows all the brain functions, and brings them below their normal acuteness. It diminishes the power of reason and judgment.—I. D. MISHOFF, M.D.

NICOTINE POISONS TISSUES OF THE BODY.

There is no such thing as the temperate or moderate use of tobacco. Tobacco is a poison, and harmful in all doses. The effects may not be apparent to-day or to-morrow, but the mischief is being done and will certainly appear sooner or later. It is safe to say that tobacco never prolonged a single human life a single day. As a death-dealing agent it is highly potent, but it can contribute nothing to life or health.—F. S. KELLOGG, M.D.

Tobacco makes its largest inroads on those who have not reached maturity. At every stage of life tobacco makes less instead of more of a man, while it is especially active in making the old man slovenly and loathsome.—A. P. REED, M.D.

TOBACCO SHORTENS LIFE.

The average life of the heavy smoker is appreciably shortened.—J. M. BARNETT, M.D.

NINETEENTH CENTURY NOTES.

III. MAN COMING TO HIS OWN.

THE year 1830 marks a definite turning-point in the story of the century. The severest of the reaction following the wars of Napoleon had passed, although a conservative spirit was still in the lead. But new forces were in motion; the great age of mechanical invention had fully opened. Machines had begun to do the work formerly done by hands, and steam to move the machines and swiftly to transport the product over land and seas. Home production was giving away to the factory system, and labor, displaced by the rapid change in methods of production, conscious of its misery and eager for relief, justly claimed that some of the promised blessings of liberty should be hers. Hence the influence of the new economic conditions, manifesting itself differently in different countries, made the events of the ten years following 1830 center about the needs and rights of the individual as the contribution of this decade to the progress of the century.

The success of Greece in winning independence and of France in overturning the monarchy of Charles X. gave other European states fresh courage to renew their efforts for wider liberties and independence. Belgium, as we have already seen, gained independence from Holland, while several of the German states secured new constitutional privileges, to the distress of Metternich who thought he saw in these commotions "the world in ruins." This being his view of the situation, the efforts of a few of the Italian states to rid themselves of the rule of Austria were promptly stifled, and the Italian lack of a common definite purpose and course of action led to apparently hopeless failure. Yet the darkness was lightened by the enthusiasm and ideals of "Young Italy," whose leaders saw her only hope to be in the cultivation of a spirit of national unity.

Poland, chafing under the Russian yoke imposed by the Congress of Vienna, tried to shake it off, but found herself, in spite of heroic resistance and defence, no match in numbers or organization for the Russian Czar Nicholas, and so lost many of the privileges she had before enjoyed.

Like Italy, Germany was seeking unity. But the unbounded influence of Metternich over King Frederick William of Prussia and other German princes retarded constitutional progress. Every form of public demonstration was repressed. Finding themselves unable to secure at once any radical political changes, the people turned their attention to the new opportunities afforded by the progress of industry and commerce growing out of the changed conditions of production and transportation. Each state was practically independent in the management of its internal affairs, and the widely differing commercial regulations proved a great hindrance to increasing trade. Within the borders of Prussia alone, it is said, there were sixty-seven different commercial and tariff systems. Therefore it became necessary, simply as a matter of financial interest, that trade regulations should be simplified. Gradually following the lead of Prussia, by 1836, nearly all the states were united in a commercial union by which internal tariffs and custom-houses were abolished, and a common tariff list was agreed upon.

Naturally the states became interested also in improving means of communication, such as roads, canals, railways, steamship lines, and postal arrangements, all of which led to a community of interest, lessened local prejudice and created a sense of responsibility for the common public good, thus paving the way for genuine Germany nationality.

While Italy was struggling for unity and against the autocratic rule of princes, and Germany was achieving it, though in a roundabout way, France had entered upon a new phase of national life. National and political unity were already hers; she had settled the question of the right of the people to a share in the government. She had now to make practical her theories, and to meet questions relating to the social and economic rights of the individual.

The results of the revolution of 1789, while benefiting the nation as a whole, had been especially to the advantage of the middle classes, and only indirectly to that of what had been known in the old days as the "Fourth Estate." The "July Monarchy," as that of Louis Philippe was called from the month in which it came into power, came into existence at the summons of a portion of the middle class, and the people felt it one of their special grievances that the question of his selection was never allowed to come to a popular vote. Industry and commerce were largely in the hands of this same middle class. To the laborer, working under miserable conditions, with the rate of taxation still high, the tyrannous rule of the monarch had but given way to a no less oppressive rule of the capitalists. Hence, as the people felt the spirit of the "July Monarchy" and of the middle classes to be identical, their hatred of the latter naturally extended to the former and became one of the influences that led to its fall. The misery of the working classes soon broke out, especially in the vicinity of Lyons. The losses to the silk trade through home and foreign competition fell heavily on the workmen who, it is said, were receiving but about eighteen cents for a day's labor of eighteen hours. Small wonder that they rebelled with the cry, "We must live while working or die fighting."

The government in its determination to preserve peace at home and abroad proved unequal to the situation, for the harsh measures employed to restore order, unaccompanied by any measures for permanent relief, while taxes were still unchanged and no effort made to reduce the cost of living of the laborer, only increased the bitterness. The government, unable to solve the problem of the proper organization of society thus presented to it, contented itself with trying to keep the surface smooth. The wider constitutional privileges promised at the accession of Louis Philippe were not forthcoming and every protest was answered by repression until, at last, convinced they must bide their time, the people tried to think out for themselves the solution of the problem, and only waited until a favorable opportunity should be given for trying the theories so evolved.

"When the girl queen stepped upon the throne of her fathers she found the nation awake as never before to the needs of mankind."

Meantime, across the channel, England was confronted with questions not unlike those of France, but she was meeting them more openly and intelligently. There the growth of manufacturing interests had brought into great prominence the inequality of popular representation in Parliament. It is said that out of a population of 3,000,000 male adults in England, 15,000 chose a majority of the members in the House of Commons. There were numerous so-called "pocket" or "rotten boroughs" which represented only the owners of the estates in which they were situated. One duke alone was represented by eleven members who sat for places forming a part of his estates. Since the establishment of the boroughs new towns and cities had grown up, devoted chiefly to manufacturing interests which practically were not represented in Parliament at all. The movement begun before 1830 for parliamentary reform was hastened by the overthrow of Charles X. in France in 1830, for in both countries the impulses stirring were those of the middle and mercantile classes. The famous Reform Bill of 1832 at last swept away old election abuses and established a basis of fair representation. With it came an extension of the suffrage and reforms in city governments.

Nor did reform stop here. The spirit of democracy was abroad which, says Goldwin Smith, "whatever its political weaknesses is humane. It sets equal value on all human life and recognizes in every human form the dignity of man."

With an increased power in government came other reforms touching directly the lives and conditions of the people. The Poor-Laws were swept away, an institution which by its system of relief of the poor had directly encouraged pauperism, and by confining those out of work to their own parishes had prevented labor from seeking the best market, and had also degraded it by leading farmers to employ paupers supported by the parishes instead of paying wages. The list of capital crimes was reduced. Imprisonment for debt, which Mr. Bancroft tells us had kept every year at least 4,000 men in prison, was abolished. The prisons themselves were subjected to regular inspection to prevent abuses. The man accused of felony was given the right to have counsel heard. The labor of women and children in mines and factories was restricted, trades-unions legalized, and factory inspectors appointed. Beginnings were made for a national education, while a lightening of taxation on the press and the introduction of the penny post speedily increased the circulation of the printed page, and consequently public intelligence. "The Reform acts of 1832," says Mr. Stead, "cast the die in favor of democracy."

Nothing could have been more striking than the contrast between the ways in which France and England met similar problems. The hesitancy and inability of the former to cope with them settled nothing, led to repression and another revolution, while the latter, dealing with them with

"Some sense of duty, something of a faith,
Some reverence for the laws ourselves have made,
Some patient force to change them when we will,"

was entering upon a period of serious activity and hope. To England "everything was new, everything was true, and everything was of the highest importance."

It is true that all wrongs in England were not settled in that one decade, but a beginning had been made, and when, in 1837, the girl queen stepped upon the throne of her fathers she found the nation awake as never before to the needs of mankind, strong in battles of the past won for liberty and justice, ready to enter upon the future of a government which as never before was a government of the people.

One of the greatest results for humanity springing from the Reform Acts was the abolition of slavery in British domains in 1833. Not so fast had this reform progressed in the New World where, through the thirties, slavery became more and more a burning question while the dark cleavage line between North and South was already visible. Great as was the moral wrong, slavery at this time was chiefly an economical, industrial and political question. Given new life by the industrial and commercial changes which made possible a greater production from southern fields, it had become a sort of Moloch requiring offerings from society and nation. Protective tariffs could not be levied because the weight bore too heavily on those employing slave labor with all the expense which the latter entailed. The freeman could find no employment in competition with slave labor, while the slavery system was constantly reaching out for new fields to till, new territories to settle, new powers in state and nation with which to strengthen its hold.

The fourth decade of the century was one of tendencies rather than a period of definite settlement of questions, tendencies which can only be explained and their trend and importance determined in the light of succeeding years. It was a time of striving after methods by which the individual should come into his rightful heritage of political, social and industrial freedom, and each nation had to work out the problem in its own peculiar way. It was a time of conflict, uncertainty, disappointment, yet on the whole of definite progress, so that the poet with his clear-eyed vision could sing:

"Ourselves are full
Of social wrong; and may be wildest dreams
Are but the needful preludes of the truth. . . .
This fine old world of ours is but a child
Yet in the go-cart. Patience! Give it time
To learn its limbs; there is a hand that guides."

"The average life of an engine only 30 years?" said an astonished passenger. "Why such a tough-looking thing ought to live longer than that."

"Well," said the engineer, "perhaps it would if it didn't smoke so much."

SPECIAL NOTICE.

THE great fire at Bloomington, Illinois, which destroyed five blocks of buildings in the business heart of the city, burned the records of the Public-School Publishing Company. The vault in which they were kept was thrown down by the falling walls.

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A haze on the far horizon,
The infinite, tender sky,
The ripe, rich tint of the cornfields,
And the wild geese sailing high;
And all over upland and lowland,
The charm of the goldenrod—
Some of us call it Autumn,
And others call it God.

—WILLIAM HERBERT CARRUTH.

A little boy at Islington, whose father is a Frenchman, but who, himself, was born in England, has recently been taking his first lessons in English history. The other night he looked up from his book, musingly, and said to his father:

"Papa, we licked you awfully at the battle of Waterloo, didn't we?"

THE AUTUMN JEWEL.

Those awful powers on man that wait,
On man, the beggar or the king,
To hovel bare or hall of state
A magic ring that masters fate
With each succeeding birthday bring.

Therein are set four jewels rare:
Pearl winter, summer's ruby blaze,
Spring's emerald, and, than all more fair,
Fall's pensive opal, doomed to bear
A heart of fire bedreamed with haze.

—LOWELL.

Some time ago little Walter had occasion to differ with his aunt upon some trifling matter. "I tell you," said auntie, playfully, "I know a few things." "And I know as few things as anybody, I guess," said Master Walter, indignantly.

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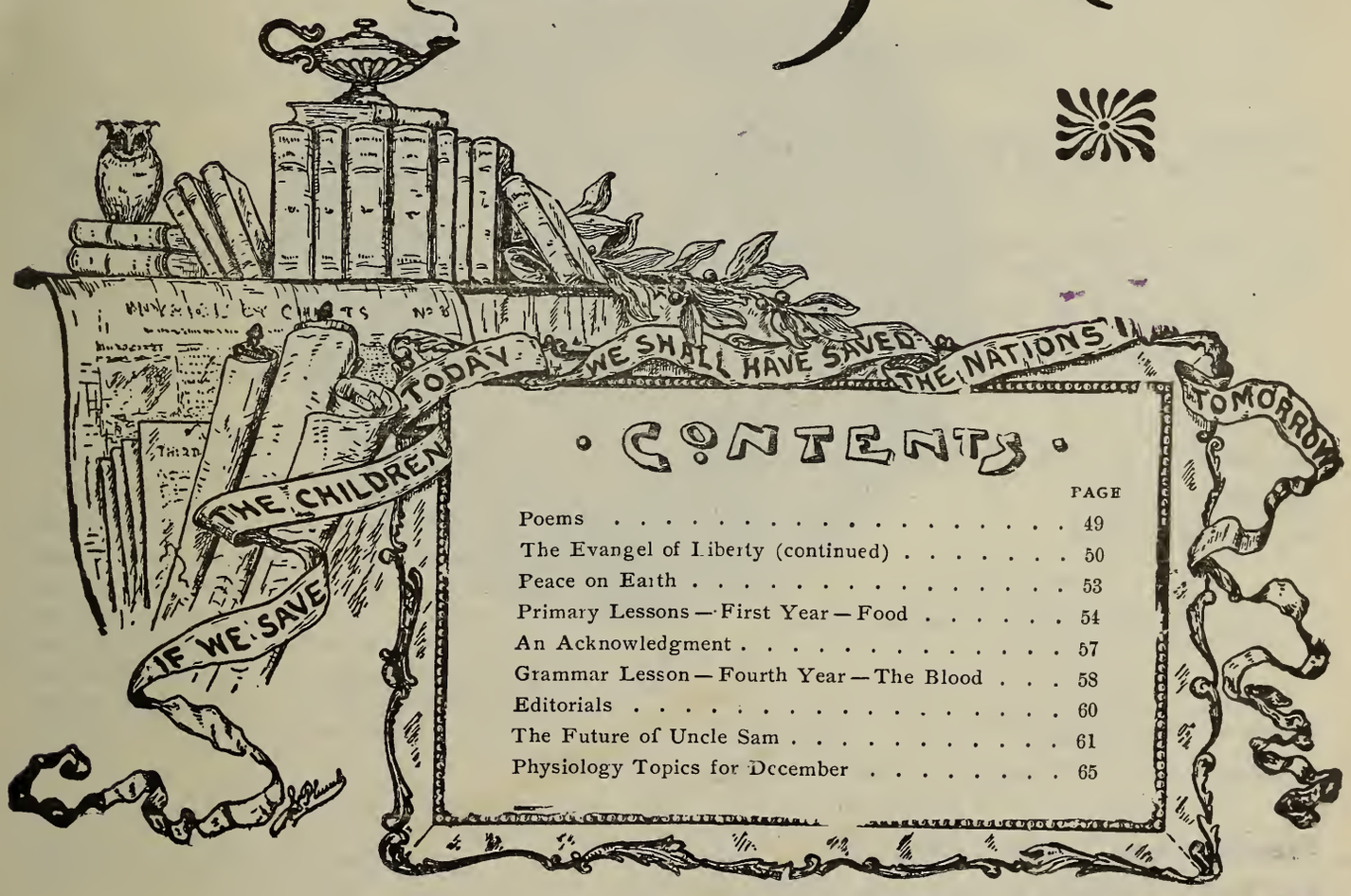

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VOL. X. No. 4.
DECEMBER, 1900.

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School Physiology Journal

Vol. X. *BOSTON, DECEMBER, 1900.* *No. 4.*

O LITTLE TOWN OF BETHLEHEM

O little town of Bethlehem
How still we see thee lie;
Above thy deep and dreamless sleep
The silent stars go by;

Yet in thy dark streets shineth
The everlasting Light;
The hopes and fears of all the years
Are met in thee to-night.

For Christ is born of Mary,
And gathered all above,
While mortals sleep the angels keep
Their watch of wondering love.

O Morning stars together
Proclaim the holy birth!
And praises sing to God the King,
And peace to men on earth.

O holy Child of Bethlehem!
Descend to us, we pray;
Cast out our sin and enter in,
Be born in us to-day.

We hear the Christmas angels,
The great glad tidings tell—
O come to us, abide with us,
Our Lord Immanuel!

PHILLIPS BROOKS.

THE NEW RAPHAEL

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GREETING

A happy Christmas to you!
For the Light of Life is born,
And his coming is the sunshine
Of the dark and wintry morn.
The grandest Orient glow must pale,
The loveliest western gleam must fail,
But his great light,
So full, so bright,
Ariseth for thy heart to-day,
His shadow-conquering beams shall never pass away.

A happy Christmas to you!
For the Prince of Peace is come,
And his reign is full of blessings,
Their very crown and sum.
No earthly calm can ever last,
'Tis but the lull before the blast;
But his great peace
Shall still increase
In mighty, all-rejoicing sway;
His kingdom in thy heart can never pass away.

FRANCES RIDLEY HAVERGAL.

A BELL

Had I the power
To cast a bell that should from some grand tower,
At the first Christmas hour,
Outring,
And fling
A jubilant message wide,
And forged metals should be thus allied;—
No iron Pride,
But soft Humility, and rich-veined Hope
Cleft from a sunny slope;
And there should be
White Charity,
And silvery love, that knows not Doubt nor Fear,
To make the peal more clear;
And then to firmly fix the fine alloy,
There should be Joy!

CLINTON SCOLLARD.

CHRISTMAS BELLS

I heard the bells of Christmas Day
Their old familiar carols play;
And mild and sweet
Their words repeat
Of peace on earth, good will to men!

And thought how, as the day had come,
The belfries of all Christendom
Had rolled along
The unbroken song
Of peace on earth, good will to men!

LONGFELLOW.

THERE'S A SONG

There's a song in the air!
There's a star in the sky!
There's a mother's deep prayer
And a baby's low cry!
And the star rains its fire while the beautiful sing
For the manger of Bethlehem cradles a King!

We rejoice in the light,
And we echo the song
That comes down through the night
From the heavenly throng.
Ay! we shout to the lovely evangel they bring,
And we greet in his cradle our Saviour and King.

—J. G. HOLLAND.

THE EVANGEL OF LIBERTY

(Continued from November Journal)

THE criticism has been passed that we want "too radical teaching in regard to alcohol, teaching that is not true."

In other words, the question is: Are the indorsed temperance physiologies accurate.

Without fear of successful contradiction I reply that as far as truth is yet ascertained, they are. Soon after the revised and indorsed books began to go quite universally into the schools, some eight or nine years ago, vague criticisms of inaccuracy began to be heard. In spite of the utmost probing on our part no specification of what these inaccuracies were could be got from anybody, except that here and there statements which could be quickly shown to be well supported by one well read in the authorities were objected to.

"But did not Professor Atwater prove the books inaccurate?" some one may ask. Through the press he was reported as saying he had proved that alcohol is oxidized in the body, yielding heat and energy, and that he had also proved that alcohol protects the material of the body from consumption just as effectively as do corresponding amounts of sugar, fat, and starch, and therefore is a food. Consequently, the indorsed text-books are in error in teaching that alcohol is not a food but a poison. Did he prove all that? First, the fact that a substance is oxidized in the body liberating heat and energy does not prove it to be a food, for many virulent poisons are thus oxidized and liberate heat and energy but kill at the same time. This is true of muscarine, morphia, carbolic acid and other substances. If oxidation proves a substance to be a food then these deadly poisons are food. The idea is absurd.

Did he prove that it protected body material?

Five months after this newspaper campaign had flooded the country with the notion that alcohol is a food, the tables were published which showed the physical condition of the man Professor Atwood experimented on in the calorimeter with alcohol diet. The figures in those tables showed that instead of alcohol protecting the material of the man's body from consumption, and therefore acting as a food, the man lost on that diet so much vital body material (protein) that Professor Herter, of Bellevue Medical College, New York, said the results of these experiments pointed to alcohol being a protoplasmic poison instead of a food. Not only other eminent scientific men but the leading medical journals of the country assert that Professor Atwater did not prove alcohol a food and not a poison. Thus that attempt to prove the teaching of the indorsed books inaccurate has gone up in smoke.

Another effort that came to a similar end calls for brief mention. Three medical men known as opponents to this instruction got themselves chosen as a committee from a medical society to examine and report on these text-books. Agitation that grew out of this appointment may have delayed their work. However that may be, five years after they were chosen they published a list of some seven statements claimed to be errors found in some thirty books. Five out of these seven so-called errors were found to be supported by the strongest medical authorities in the world. The other two, only one of which was on alcohol, were statements not sufficiently guarded which had escaped the vigilant eyes of author and proof-readers. They were immediately corrected. That only two such were found in thirty books after prolonged research by active opposers is itself the best evidence of the reliability of our indorsed books.

But is alcohol a poison? Editorials have appeared in one of the religious journals, The Outlook, which claim that we should teach that alcohol is sometimes a food and sometimes a poison, but The Outlook gives no data by which the pupil can decide when he would be fed or when poisoned by alcohol.

Tens of thousands of drunkards' graves in our country, hundreds of thousands in the world are yearly filled by those who have decided by deadly personal experience that alcohol has poisoned them.

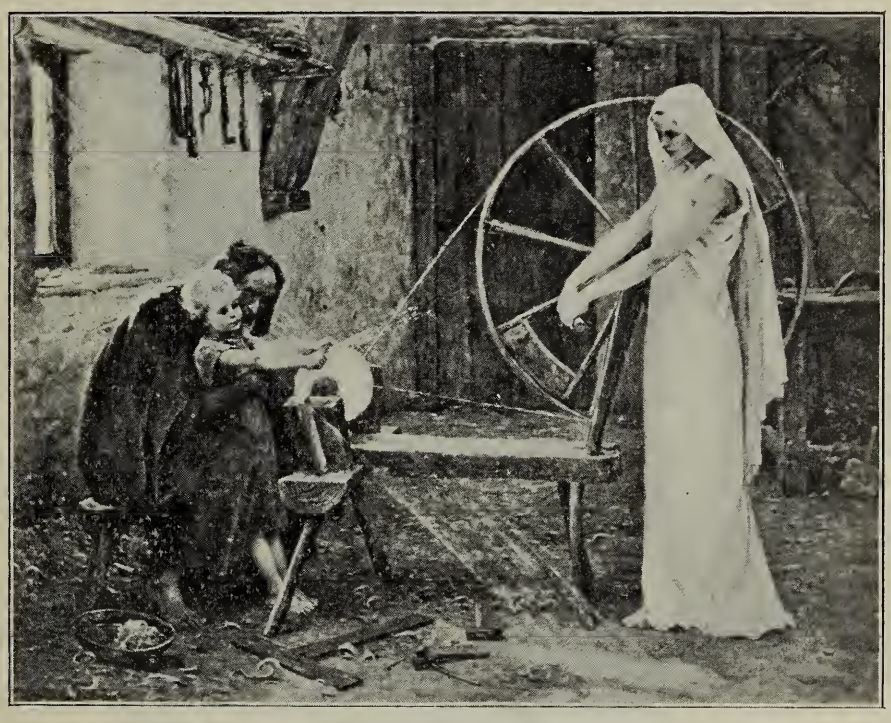
The character of a substance does not change with location. What then is the truth we should teach in the matter. Truth is not only eternal but universal, and when attention is once aroused, it finds advocates in all lands which in our day are so linked together that more than ever

"Mankind are one in spirit, and
Instinct bears along
Round the earth's electric circle, the
Swift flash of right or wrong."

Professor Atwater's claims for alcohol are being answered by the laboratories of Europe as effectively as at home, and this claim of The

Outlook that alcohol is both a food and a poison is overwhelmingly refuted by the scientific testimony of two continents. This is voiced by Professor Max Kassowitz, a noted specialist of Vienna, who has just published in a leading German medical paper (Deutsche Medicinische Wochenschrift, 1900, No. 32) a careful review of all the recent investigations on the food value of alcohol. After a critical examination of all the claims that have been made for it he gives this as his decision:

"Alcohol for the animal and human organism is not a food and at the same time a poison, but a poison only, which like all other poisons in large amounts has a deadly, paralyzing, and disease-producing action, while in small doses it has only an irritating effect." The children in our land are heirs to the whole truth and nothing but the truth of this question. To teach them less is a crime against their future and against the future of our land soon to be governed by them.



"The angels come and go, the messengers of God!
Nor though they fade from us do they depart—
It is the childly heart."

It is not too much to say that not a claim in favor of any form of alcohol as a beverage has been made that is not overwhelmingly refuted by the best experimental science of to-day. Professor Victor Horsley, one of England's greatest medical men, says: "From a scientific standpoint total abstinence must be our course if we are to follow the plain teachings of truth and common sense."

Alcohol a food! It is the greatest of all feeders of crime, poverty, misery and madness. When once it gets an entrance it thrusts its destroying hopeless dominion over its victim. It enters the innermost sanctuary of individual being with a power that destroys every other love and interest. It enters where nothing else can. We say God has all power, but there is one threshold before which even Omnipotence stops and waits to be bidden to enter, and that is before the often weed-grown door of the human heart. In pleading tones the Master urges, "My son, my daughter, give me thine heart." You may accept or reject as you choose. God never forces the will; it is your own. But what God thus respects, alcohol overthrows and makes its own unwilling bond slave. The poor victim writhes under the chain it can not break.

Alcohol a food! It feeds the bottomless pit with the noblest and bravest of our land. Our children should be warned against its awful power and be shown the scientific connection between the first glass and the drunkard's fate. The student of the alcohol question who also knows what the indorsed text-books teach knows that in them we are not asking for more than the truth to be taught.

We are living in the last days of the most wonderful of centuries. Truth is rushing in upon us as never before. The achievements, discoveries, and inventions of the last one hundred years outstrip in number and effect those of many preceding centuries combined. Great nature's secrets hitherto hidden have been revealed to man's research and made to be his servants. We have imprisoned light, made lightning do our bidding and carry both us and our messages. We have annihilated time and distance in our methods of intercommunication until the world is one vast whispering gallery, and distant nations answer our morning salutation almost as soon as the neighbor over the fence. This article opened with Humboldt's saying that "change is the watchword of this world." This was never so true as now. Changes are so many and so rapid as almost to cease to excite wonder. The trend of them all is to set people thinking, to liberate them from old bondages, from the helplessness and solitariness of isolation, from the uncertainty and darkness of ignorance, and to develop a neighborly helpfulness among nations and peoples little understood in other times.

In that classic history, "Fifteen Decisive Battles of the World," written by an Englishman fifty years ago, after dwelling on the greatness that we as a nation had then attained and

the effect that greatness and power were likely to have upon other nations facing our Pacific Coast when that portion should be settled by us, Dr Creasy, the author, says:

"The intercourse of traffic between these ancient Asiatic monarchies and the young Anglo-American republic must be rapid and extensive. Any attempt of the Chinese or Japanese rulers to check it will only accelerate an armed collision. The American will either buy or force his way. Between such populations as that of China and Japan on the one side, and that of the United States on the other — the former haughty, formal, and insolent; the latter bold, intrusive, and unscrupulous — causes of quarrel must sooner or later arise. The results of such a quarrel can not be doubted. America will scarcely imitate the forbearance shown by England at the end of our late war with the Celestial Empire; and the conquest of China and Japan, by the fleets and armies of the United States, are events which many now living are likely to witness."

This is a good illustration of the growth beyond British expectation of neighborly feeling in our Christian republic toward other nations. The United States, instead of over-running China with troops and fleets, in pursuit of gain, as Dr. Creasy predicted, is to-day leading the allied powers of the world in an effort to save China an unbroken nation in spite of the insane attack of her Boxers upon the representatives of the governments of all Christendom.

Our glorious heritage in the boundless resources of our country has made us the richest nation the world ever saw. Wise men, our fathers, in planning our free institutions, with universal education and a fair chance for all, laid broad foundations for our freedom. These, with God's guidance in the application of the philosophy of Calvary, have given our republic the place we now hold as one of the greatest world powers. Freedom based on equal rights to all does not develop an unscrupulous but an altruistic people.

In the Spanish war, much as that cost some of us, we saw more clearly than ever before the God-appointed mission which we must live up to, as the Evangel of Liberty among the nations of the earth. Although we are not looting China to-day, and although we have given to Cuba her freedom, there is one dark blot on our escutcheon in our dealings with these child races which have come to our care. The Brewers' Journal reports sending to our new possessions 100,000 barrels more of beer last year than ever before. The story of the consequences of the beer traffic in the Philippines is heart-sickening to every one who loves his country's honor — consequences sure to come back to curse us and to complicate our efforts to civilize these people. Beer is a poor civilizer. It is rather a savage-developer.

We saw that ancient and mediæval nations rose or fell in proportion as they opened the way for the philosophy of Calvary. As a nation we have been held to that philosophy. In spite of opposition we freed the slaves, and to fulfil our mission we must stop this stream of alcoholic destruction flowing from our shores as well as through our land. Ten million people, representing the drinking habits of almost every nation under the sun, have come to our country to stay, and the men to vote. Almost our only chance of reaching them is through the schools, and in the lower grades. Thus our duty to temperance education, our work as the evangel of liberty for all lands has come to our very doors. Educate the children of these new-comers to total abstinence and they will be the staunchest allies of this reform. Neglect it and they will swamp us. It is the case of the life-pump on the leaking ship.

Has there come in some places a reaction against scientific temperance instruction in the public schools?

Certain parties, for purposes of their own, are trying to create such. The effort to prove alcohol a food is indicative of that purpose. During the past year, from many sources, the assurance and sometimes the threat has come to me that if I would only consent to have the teaching that alcohol is not a food but a poison taken out of the indorsed text-books, all the trouble including personal attacks would cease; if I would not do this something dreadful was to happen.

My reply has always been, "I will certainly do all I can to secure this change if you can prove that alcohol is a food and not a poison, as the people understand those words; but until that is proved, I must stand and having done all, stand."

The century opened with everybody thinking alcohol a food. while the curse of drink threatened the health and morals of civilization. It closes with alcohol arraigned before the bar of scientific investigation to answer to the charge of manslaughter in nearly every civilized country in Europe. The French Academy of Science, the universities of Germany, Austria, Switzerland, and Belgium are studying the question; leading professors in those countries are taking the witness-stand to testify against it. Russia has just organized a commission for a most extensive investigation covering the social, legislative, and legal phases. In beer-drinking Germany there is a society of total abstaining teachers and another of total abstaining physicians, both issuing testimony against alcohol in regular publications. The Kaiser has found that alcohol reduces the efficiency of his soldiers from fifteen to twenty per cent, and

both he and the emperor of Russia are seeing the failure of restrictive measures and are trying prohibition.

We have gone farther than most European countries in requiring this study in our schools, while from all this investigation in Europe and our own land there is coming upon us a continuous stream of truth which is all one way. Opposers can no more keep this truth about alcohol from the people and their children than they can keep back the water at high tide with a board fence. The mighty force that is always back of truth is as resistless as the tides of ocean. In the councils of God the hour is set in not distant years for the emancipation of our land from alcohol through the universal education of the people. Glorious is the opportunity open to all to work for that coming, and to hear at last the "well done" when the alcoholic and other narcotic bondage is no more.

Not far from the lot where my own precious dead are buried in Forest Hills Cemetery in Boston is a mound before which I have stood with reverent thankfulness for the great soul whose earthly body lies buried there. It is the grave of William Lloyd Garrison, the man who said when urged to modify or retract his denunciation of slavery:

"I will be as harsh as truth, as uncompromising as justice; I will not equivocate, I will not excuse, I will not retreat a single inch, and I will be heard." He was heard and because he was, slavery is no more. Such graves are the waymarks in human progress. In the midst of the battle he was maligned, his motives impugned, a price set on his head; he was imprisoned in his own city, Boston; the newspapers denounced him; he was called a firebrand, was scoffed at and forsaken. But he faltered not. After the reform for which he labored was accomplished, he left a message. Listen, it is for us:

"Henceforth through all coming time, advocates of justice and friends of reform, be not discouraged; for you will and you must succeed if you have a righteous cause. No matter at the outset how few may be disposed to rally round the standard you have raised — if you battle unflinchingly and without compromise — if yours be the faith that can not be shaken, because it is linked to the Eternal Throne — it is only a question of time when victory shall come to reward your toils."

The cause of temperance education for the children of this nation is just; it is God's cause. We will battle for it unflinchingly, unitedly, and without compromise, linking our faith, prayers, and work with Omnipotence to hasten the glad emancipation day from the bondage of alcohol. MARY H. HUNT.

"The air is shaken with white and heavenly wings—
This is the Lord of all the earth, this is the King of Kings."

PEACE ON EARTH

Nineteen hundred years ago
Came a message sweet and low;
O'er an infant's humble birth
Fell a new strain to the earth;

Angels sang the chorus then,
"Peace on earth, good will to men."

Since that dim and distant time
War has been in every clime;
Earth has been submerged in blood
Of a common brotherhood;

But the few were singing still,
"On earth peace, to men good will."

In this later, brighter day,
Are we nearer peace than they?
Still our soil with blood is wet;
War is round about us yet.
Will the carnage ever cease?
Yet we hear the song of peace.

It will come,—'tis not a dream!
Through the darkness shines a beam.
'Tis a glimpse, a prophecy
Of the years that are to be;
Of a new time come to birth—
Of the dawn of peace on earth.

J. A. EDGARTON.

Primary Lessons

FIRST YEAR

FOOD

WE are beginning to realize that "we can not do justice by the soul of a child while we are doing injustice to his body."

Society no longer contents itself with classing individuals as brilliant, mediocre, and stupid. It demands the reason for such classification. It asks how these individuals are fed, sheltered, trained, where they are brought up, who their parents were. And with clearer insight into the causes which make the adult what he is, has come a degree of knowledge as to how the youth may be helped to develop into sturdier manhood.

The question of the relative value of foods and their effects upon the system is not yet fully solved by the scientist, but this is no reason why the child should not be taught what foods are wholesome and suited to his needs, and what combinations are most likely to check development. If the body is not well nourished in youth there is no second chance to make good the deficiency. Instruction must be given early and often to be of value.

In the present lessons the leading thoughts to be developed are:

What food does for us.

Where it comes from.

The best kinds to choose.

As lack of space prevents the full development of each topic, the first only is given in detail. With this as a guide the teacher can easily present the second and third topics also in story form — the guise in which facts are best impressed upon the child's mind.

WHAT FOOD DOES FOR US

Richard's father was a large strong man. When he came into the house Richard would run to meet him and he would toss the little fellow up to his shoulder and run with him through the house, looking for mother. It was great fun.

"I wish I were a big man like you," Richard said after the frolic was over and he was perched on his father's knee.

"Never mind, my boy; you will catch up with me fast enough. Why, you can do something now that I can't."

"What?" asked Richard with very wide open eyes. It did not seem possible that such a little fellow could beat his splendid big papa at anything.

"You can grow," said his father, "and I have to stay just the same size I am now."

"What makes me grow?" Richard asked next.

"The breakfast you ate this morning helped, so did your dinner. Much of this food you eat is changed into the different parts of your body and so makes you taller and heavier than before.

"When you feel hungry it is because some part has not been getting its share to eat and needs to be fed. If you did not eat at all you would stop growing and starve. We must take food to keep us alive."

"If I eat a lot will I soon be as big as you?" asked Richard.

"You will grow quite fast enough," said his father, "if you eat a good meal three times a day. But it wouldn't help matters any to eat more than you need. It would only make you sick.

"The food you eat has something else to do besides making you grow. It has to keep you from wearing out.

"What did mother do to the trousers you wore a hole in yesterday?"

"She put a patch on them," said Richard, and now they are just as good as new."

"When you run and play you wear out your body as well as your clothes," said his father; "but a good night's rest and the right kind of a breakfast or dinner repairs them again much better than we possibly can our clothes. We can not find the place where our bodies are mended, so you see our food is a better dressmaker than mother even.

"When boys and girls get to be men and women their bodies wear out so fast that all the food they eat is needed to keep them in repair. That is one reason why they stop growing tall.

"Food does another wonderful thing for us. It helps to keep us warm."

Just then the supper-bell rang and Richard started off on his father's shoulder to find mother.

WHERE IT COMES FROM

Tell the children what you had for breakfast this morning before coming to school. Ask what each one of them had.

Write their answers on the board, omitting duplicates and placing wholesome foods in one column and unwholesome foods in another.

FRUITS

Begin this lesson with a talk about fruits which the class have seen and tasted, giving

every child a part in the discussion. Ask them to name the fruits they like best. Find which ones they have seen growing. Did these grow on trees, vines, or bushes? Have them describe as well as they can how grapes grow; plums; berries. Have as many different fruits as you can easily get on a plate before you as you talk about them, and give each child a taste at the close of the lesson.

Find how many pupils live on a farm or have spent some time in the country. Ask such to tell what fruits grew there and what time of the year each ripened. Ask what the farmers did with the ripe fruits. Have them name places where people do not raise fruit. How do those who live in large cities get fruit to eat? Where does it come from?

Lead the children to compare the familiar home fruits as to shape, size, color, taste. Ask what parts of the apple are good to eat; of the plum, peach, grape. Explain to the class why one should not swallow the skins, seeds, or stones in eating fruit.

Take up, next, fruits which do not grow in our country but which are familiar to every child from fruit-stands or grocery stores. Show pictures of the orange, lemon, pineapple, banana and grape fruit, and tell something of how these fruits are cultivated. Explain why they are picked when green and how they are sorted and packed for transportation. Every attractive picture, story, and song about fruit which will help to make the topic interesting should be saved for this lesson, and utilized by the teacher.

"I wonder if Santa Claus has come yet?"

GRAINS

Group together the breadstuffs and cereals used as foods which have been mentioned by the class. Have samples of all the common varieties in tiny bottles and show the children. Show also the different grains used for food.

Find how many of these food grains are familiar. Ask those who have seen them growing to tell the others about it. Describe a rice field to them and show pictures of men sowing this grain in the water. Explain why we do not raise rice here.

Draw a picture of the wheat stalk on the board, if the plant itself can not be had for examination, and beside it sketch a sack of flour and a loaf of bread. Tell where the wheat grows. Show pictures of sowers. Explain how grain is gathered to-day, reaped, bound and threshed on the field by machinery, then sent to every part of the world. Contrast present methods with the sickle and flail in use sixty years ago.

So far as possible have the children explain how wheat is made into flour and bread. Go through the process in pantomime, having the class imitate. Cut open a kernel of wheat, showing the outer husk, the hull, and fine white inner part. Show white bread and that made from the whole wheat. Explain why the latter is more nutritious and hence a better food.

What else is wheat used for besides bread? Show the different cereal foods made from wheat. Let the children tell some of the ways in which they have seen their mothers use wheat flour — for making biscuits, cake, pastry, cookies — but explain that the best use of all for wheat is to make it into bread.

Pour out some of the different grains into piles on a tray. Let the children name each kind, and tell one or more of the uses to which it is put. They will readily think of such common foods as corn bread, johnnycake, rye bread, barley for thickening soups, oatmeal, boiled rice, buckwheat cakes.

MEAT

Outline an egg on the board. Find how many of the children know where eggs come from and extend their knowledge beyond the crates in a grocery store. Show the picture of a nest of eggs or sketch such on the board. Tell a little story of the hen cackling with delight as she lays an egg for our breakfast, then of her patience in sitting day after day on her nest until the little chickens are hatched and ready to run about with their mother. Country children will know these facts and be full of interesting stories of their own, but it will all be new to their less fortunate city cousins.

Show the picture of a large cattle ranch. Ask the children what the flesh of an ox or cow is called when we use it for food. Let them mention other animals used for food, and give the name of the flesh of each.

Ask what kinds of food come from the water;

rivers, lakes, or the ocean. Where do we get clams, oysters, sardines, shrimps, herring? This list of sea foods should be varied by the teacher to include only those which the class have seen or tasted.

Find how many know what animal food we eat on our oatmeal in the morning. Many children in the city know nothing of milk beyond the cans of the milkmen. Show them pictures of cows at pasture and again in the milking-shed. Describe a creamery and tell them how milk is made up into butter and cheese.

VEGETABLES

Find how many of the children have been in a garden and have seen vegetables growing. Ask such pupils to describe one or more of the following: Lettuce, peas, beans, potatoes, squash, turnip, celery, radishes, tomatoes, onions, cauliflower, asparagus, cucumbers, beets, parsnips, cabbage. Outline each of these vegetables on the board as it is described by the children. Help them to decide what part of each we eat; which vegetables need to be cooked before we eat them; which are best eaten raw.

Describe a sugar plantation, and tell the class in story form how the sugar we use on the table is made from the cane. Ask some one who has seen maple trees tapped to tell where we get our maple sugar and how that is made.

Give an account of an old time "sugaring off," and the fun it meant to children in the country.

Ask those who can, to think of other trees besides the maple which give us something to eat, and name them. Many boys, even in beginning classes, have gone nutting and are thoroughly familiar with the looks and taste of our native chestnut, hickory nut, beechnut and butternut. Let them tell what they know about each; where it grows, what the tree looks like; how one can tell the different trees from their shape, leaves, and bark as well as by their fruit.

THE BEST KINDS OF FOOD TO CHOOSE

Show the picture of a large handsome cat. Help the children to notice how smooth and glossy her coat is, how bright her eyes are, and how fat and comfortable she looks.

Get the children to tell you about the pet cats they have at home. Do they look like the cat in this picture?

Find how many have seen a homeless cat. How did she look? What made her thin and poor?

Point out the difference in the way the two have been fed; the first regularly, with good wholesome food, the second only with such scraps as she could pick up here and there and with what she could get by hunting.

What kind of food do we need to keep us strong and well? Will anything less than the best do for growing boys and girls?

Explain to the children that the best food is not necessarily that which costs the most or that which tastes the best, but that which builds up the body and makes it strong.

What is the baby's first food? Refer to some fat rosy-cheeked baby who has been brought up on milk alone. Point out what this food has done for him. It has made him taller and heavier; it has been changed into flesh and blood and bone and muscle; it has kept him well and hearty.

Help the children to see why the baby can not eat solid food as we can. Ask what our teeth are for. Show that if they are for use as well as ornament we must not swallow our food until the teeth have had a chance to do their work.

Refer to the list of wholesome foods on the board and tell the little ones why each is good.

Whole wheat bread, eggs, lean meat, milk, cheese, peas, and beans give us strong bone and muscle, and make us grow tall.

Butter, cream, olive oil, potatoes, corn, rice, oatmeal, sweet fruits and vegetables make us round and plump, and help to keep us warm.

Would it be good for us to have all these foods at once? Why not? Help the children to select from these foods those which would make them good breakfasts, dinners, and suppers.

Give them simple rules about cooking common foods; for instance, that eggs are better for us when the white is a soft jelly instead of being hard-boiled; that pork and all white meats must be cooked very thoroughly; that meats are much more wholesome when roasted or boiled than fried; that foods cooked in hot fat are hard to digest and should not be eaten by children.

Bring out some of the ways in which children differ from grown-up people. They are not so tall or strong or large; they can not lift as much, run as fast, work as hard; their arms and legs and all parts of their bodies are smaller and weaker. A child is not able to do the work of a man.

Show that his stomach is weaker, too, and should not be called upon to digest as much food as that of a grown person, nor even the same kinds of food. Explain that this is the reason why children should not eat mince pie or other pastry, rich cake, or sweetmeats, highly spiced or seasoned food, and why they need but little meat.

Help them to form a liking for fresh ripe fruit rather than made desserts, and water or milk instead of tea and coffee.

Tell the children the danger in eating unripe fruits or those which have begun to decay. In this connection, explain why wine, cider, beer,

and other like drinks are unwholesome. They are made from good fruits and grains, but a poisonous substance, alcohol, has formed in them which makes them no more fit to drink than decayed fruits or vegetables are fit to eat.

Show that in one way these drinks are even more harmful than decayed food substances, because they have the power to make the drinker like them so well he can not give them up.

AUTHORITATIVE QUOTATIONS

Certainly alcohol can not be regarded as an efficacious food for muscles, nerve cells, and the like. Not even in a narrow sense can it take the place of a force-generating food stuff. Experiment has shown that alcohol actually hastens bodily tissue waste.—ADOLF FICK, M.D., University of Würtzburg.

The consideration alone that a substance is oxidized in the body in no wise justifies its use as an energy-furnishing food.—ROBERT KOPPE, M.D.

Alcohol is a poisonous matter. Even when partaken of in the most temperate way it plainly interferes with the functions of the various organs. It can not be regarded as either nourishing or strengthening, and therefore it is of no use whatever in a normal diet.

AUGUST FOREL, M.D., University of Zurich.

ALCOHOL A POISON.

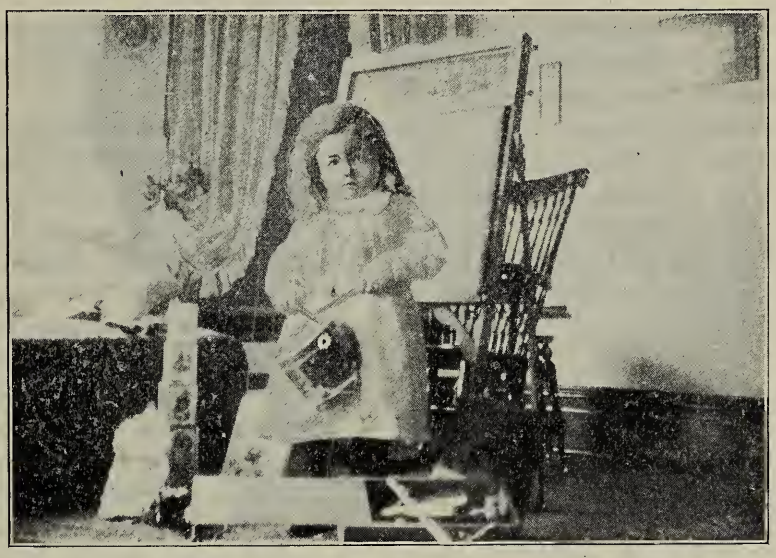
To get energy from alcohol we run great risk of poisoning, and to get any amount, such as would be necessary to support life in ordinary conditions, we must take enough alcohol to poison ourselves seriously.—HENRY F. HEWES, M.D., Harvard University.

CHRISTMAS MORNING

God with his million cares
  Went to the left or right,
Leaving our world; and the day
    Grew night.

Back from a sphere he came
  Over a starry lawn,
Looked at our world; and the dark
    Grew dawn.

NORMAN GALE.



The thought of Christmas is giving.
The heart of Christmas is love.

OUR BETHLEHEM

The whole earth is our Bethlehem
Hosannas ring from every sky!

* * * * *

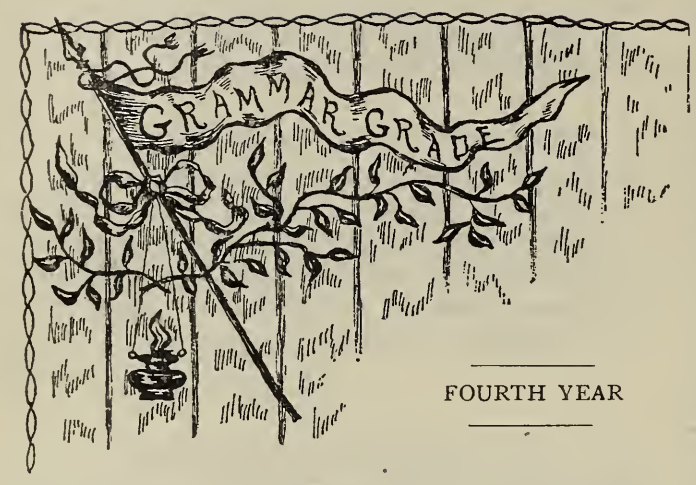
By any shore or mount or sea
Where faith and hope and love abide,
And self is lost in sacrifice.
There the celestial gates swing wide
And heaven descends to human eyes!
There Christ the Lord is born again:
  There is his new Nativity!

EDNA DEAN PROCTOR.

AN ACKNOWLEDGEMENT

THROUGH an unfortunate oversight credit was omitted in previous issues of the JOURNAL for the courtesy of Mr. La Farge, Mt. Simmons, Mr. F. D. Millet, Mr. Bela L. Pratt, Mr. Edwin A. Abbey, and their publishers, Messrs. Curtis & Cameron, in allowing the reproduction of several of their pictures in these columns. We regret exceedingly the omission and wish, even at this late day, to extend our cordial thanks to both artists and publishers for the privilege of reproducing some of their valuable pictures.

We would also call special attention to The New Raphael which appears on page 49 of this issue of the JOURNAL. The original is from an oil painting now in possession of Count Ferlet de Bourbonne, in Paris, and is attributed to Raphael. The picture was bought in Burgundy three years ago by the Count for five francs; but it was concealed under a painting in distemper. This was discovered when the Count decided to fit the canvas into an old frame. He placed the picture in the hands of a competent restorer who cleaned and varnished it, and returned to its owner a beautiful picture, which, on investigation, proved to be exactly like an engraving of a painting attributed to Raphael which was owned in 1720 by the Duke of Orleans, Regent of France. Mr. Champney was given the opportunity of making a pastel direct from the painting, and the Copley print from which this picture is made is taken from that pastel.



FOURTH YEAR

THE BLOOD

THE medical profession counts as its greatest triumph the discovery that disease may be prevented as well as cured.

Why is it that Europe no longer suffers from the periodic scourge of pestilence, and the United States has ceased to dread yellow fever? Not because these fell plagues have lost their virulence, but because we have learned how to fight them on their own ground. The comparative immunity of the civilized world to-day to the most contagious diseases, and the ease with which such diseases are confined to ever narrowing areas or entirely stamped out, is due chiefly to our increasing knowledge of sanitary laws and our better observance of the rules of health.

The introduction of hygienic physiology into every public school in the land has done more than any other agency to bring such knowledge into the home life of the people and change their thinking and their habits.

Every school child is taught now, what the most learned scholars had not thought of a century ago, that the way to keep typhoid fever out of a community is to guard the water supply from the germs of impurity and disease. He is learning also that the circulation of the blood bears a similar relation to his body as the water works and drainage system to a town, except that the former, from its greater delicacy and the more complex workings of its living nature, is more easily got out of repair and needs more careful attention.

Thanks also to modern methods of instruction, no drunkard or victim of narcotics can soon plead ignorance as the cause of his downfall. When every pupil in our schools has learned the awful power of narcotic habits to perpetuate themselves, and forge chains for their devotees which the human will is not strong enough to break, we may look for clean lives as well as sanitary homes.

There is room only for encouragement in what has already been accomplished, but our work will not be done until ignorance of health laws has everywhere given place to knowledge, and the human body, made strong and vigorous by right living and right thinking, has become indeed a fit temple for the indwelling spirit. Every lesson in physiology should aim at this result.

WORK OF THE BLOOD

Call attention to the varieties of food with which our markets and groceries are stocked. Yet the people would starve in spite of this abundance if it remained in the markets. It must be distributed to every family.

Show that the human stomach and alimentary canal are like a market in this respect. They receive food and store it until it is ready for use in the body, but they do not distribute it to every part. This is the work of the blood, and without it the body would starve, because the food shut up in the digestive organs could do it no good.

What else does every part of the body need besides food? Why does sitting in a close room often give one a headache? Why can we always work or play better after a brisk walk in the open air?

By questions similar to these show that the oxygen of the air is just as necessary to life as food is. Show that when oxygen is breathed in it goes to the lungs, just as food goes into the alimentary canal, and that to be of service to other parts of the body it too must be carried to them. This is another part of the work of the blood.

Tell the class as much as they can understand of the composition of the blood; that each drop is made up of a great many very tiny red cells and a smaller number of white cells all floating in a nearly colorless liquid.

Fill a small bottle of water with red sand and show that this makes the water look red. So the red cells or corpuscles of the blood make it look red.

Explain that the red cells carry food and oxygen which every part of the body needs; the white cells act as a kind of body guard to destroy disease germs and keep every part of the body well. They are like the soldiers Uncle Sam stations in different parts of his country to keep it in order.

What else do we have to do to make a fire burn besides put in coal and open the drafts to let in oxygen? We must keep it free from ashes. Show that there is waste matter always forming in the body as well, and that another part of the work of the blood is to collect this waste and carry it to the lungs to be thrown off.

ORGANS OF THE BLOOD

Put a diagram of the circulatory system on the board. Help the class to trace the digested food from the different points where it enters the blood to every part of the body. Have them find from their text-books in what part of

the alimentary canal the different kinds of food are absorbed into the blood.

Call attention to the fact that the bulk of our food is taken up by the lacteals from the small intestines and emptied into a large vein just before this reaches the right side of the heart.

Ask the class to find where the blood goes when it leaves the right side of the heart. Why does it need to go to the lungs? Why does the digested food empty into a vein rather than an artery?

Make a cloth model of the heart showing its valves and cavities, and explain why each is needed. Show a sheep's heart. Why are the walls so thick and strong? What is the use of its outside sheath?

Explain the difference in structure between veins and arteries. Help the class to think why the walls of the latter need to be elastic. Why does the blood flow in waves or spurts when an artery is injured and in a steady stream from a vein?

Call attention to the decrease in size of the arteries as they divide and sub-divide until they form capillaries. Show that the capillary walls are thin enough to allow the food and oxygen in them to pass out of the blood into the tissues of the body, and worn-out particles and carbonic acid to pass back into the blood from the tissues, ready to be carried by the veins to the heart. Why must all blood go to the heart before it is sent to the lungs? Why must it go again to the heart from the lungs before being sent over the body?

CARE OF THE BLOOD

It is easy to think how we can take care of parts of the body which we can see, but more difficult to know just what to do to keep those parts which are out of sight in good repair.

Compare the circulatory organs of the body to the mail system of our country. What happens when mail trains are tied up, as sometimes happens in a strike? Why does the government take every possible precaution to prevent accident or delay to the mails? Why does it take care to employ trusty men, to have strong mail cars and insist upon their being kept in good repair?

Show that the circulation of the body is far more important because it keeps us alive. How can we help its work?

Ask the class to find what makes good blood. Help them to think what foods are best, and what are unwholesome. Where can we find the oxygen the blood needs? How can we be sure of getting enough? Why do we need it at night as well as in the daytime?

Help them to find from their text-books and other sources how the blood is injured in quality by alcoholic liquors and tobacco, and how these poisons hinder its work.

Why is there great danger of sickness and disease breaking out in a town where the water supply is polluted or the sewerage system stopped up? Point out the greater harm done to the human body when its great circulatory system is interfered with. Can we afford to take the risk?

AUTHORITATIVE QUOTATIONS

ALCOHOL A PARALYZER

Our blood-vessels have muscular fibers in their walls. Alcohol paralyzes these muscular fibers; as a consequence the blood-vessels dilate and more blood than usual passes along them. The muscles are made a little stronger for the moment; but, as there is no increase of blood in the body, the effect lasts only a short time, and the muscles are soon weaker than before.—A. G. Miller, M. D., F. R. S. C. E., Edinburgh.

ALCOHOL INJURES THE BLOOD

Alcohol impairs the corpuscular elements of the blood, lessens the activity of the leucocytes, and favors tissue degeneration in the direction of fatty, fibroid, and sclerotic changes.—N. S. Davis, M. D., LL. D., F. R. S., Chicago.

The price paid is the destruction of the cellular tissues of the system which are destroyed by the minutest amounts of alcohol taken. The foremost writers on physiology of the world tell us that its use is a positive injury.—A. Monae Lesser, M.D.

ALCOHOL WEAKENS THE HEART

Blood containing two and one half parts per one thousand of absolute alcohol, almost invariably diminishes within a minute the work done by the heart.—H. Newell Martin, M. D., F. R. S., Johns Hopkins.

ALCOHOL DIMINISHES OXIDATION

Alcohol forms a compound with haemoglobin, a component part of the blood, the function of which is to take up oxygen from the air in the lungs and distribute it to the tissues, and this compound takes up and gives off oxygen less readily than the haemoglobin itself. This means, of course, that alcohol diminishes the oxidation which should go on in the body and thus lessens the normal tissue changes.

—Thomas Easton, M. D.

TOBACCO DISTURBS THE HEART

Disturbed heart action, rapid and intermitting pulse, weakness, faintness and collapse occur. The central nervous system is affected. Non-smokers get on better in school than smokers. Children who smoke exhibit less intelligence, are lazy and have other degenerative tendencies.—E. S. Talbot, M.D.

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"Thine to work as well as pray,
Clearing thorny wrongs away;
Plucking up the weeds of sin,
Letting Heaven's warm sunshine in."

A LOOK AT OUR COUNTRY

A FIVE weeks' trip in the middle and western states of addresses and talks before the Woman's Christian Temperance Union, state conventions, school, college and citizen audiences, teachers' institutes, and state teachers' associations has just closed, and I am at home again.

OUR GREAT RESOURCES

As I sit in my own study, with the autumn sunshine flooding the room, and recall the impressions brought back from this trip as compared with those received when I have been over the same ground in other years, I am conscious of an increased sense of the vastness of the growth and development of our country. The manifest newness of the West this side of the Rockies that used to impress one from the East is gone, while the air of well-being one sees on every hand bespeaks an increase in wealth that is one great source of a people's material power.

And the country itself as it lies under the autumn sunshine, its vast prairies and broad fields having yielded up for this year their boundless harvests, and with the mark of the furrow for next year's fruitage already upon them—who can find words ample enough for a description of this country?

And its people well-dressed, well-behaved, with an air of comfort and even affluence that tells of good American homes — not in any other land in all the world will you find their equal.

Everywhere schools free to all, colleges, churches, beautiful cities and villages, and any career even to that of president of this republic open to any mother's son who has the ability to achieve it. These boundless resources and blessings of liberty make our glorious land a priceless heritage, and should make its people jealous of whatever threatens its marvellous development.

OUR GREAT MENACE

Alcohol is its greatest menace because it destroys that character which is essential to liberty. The Woman's Christian Temperance Union is organized for the overthrow of alcohol, and therefore for the protection of the liberties of the people against its greatest foe. Is that organization of women on the decline? This is a question to which a lover of his country may well listen with bated breath.

From my observation during this western trip which has covered the very heart of our country in its most populous states, I am certain the Woman's Christian Temperance Union is not on the decline. Death and time are changing its personnel, but the depleting ranks are more than filled by new recruits who show the same realization of the evils of alcoholism and the same consecrated determination for their prevention that fired the hearts of the crusade mothers. Its members feel the mighty inspiration of the fact that the work of the organization is not yet done, and will not be until a generation of intelligent total abstainers are educated through our public schools to dethrone alcohol. Atwaterism or whatever else stands in the way of that education is recognized as something to be overcome.

OUR HOPE FOR THE FUTURE

Presidential trains like meteoric lights again and again shot across the path of my itinerancy during the last five weeks. As I watched in vain the utterances from representatives of the dominant parties on these trains for any reference to freedom's greatest enemy, alcohol, I recalled what Victor Hugo said to his countrymen when Louis Napoleon declaimed himself emperor of France, and no man dared protest:

"You think progress is stopped. You are mistaken. Do you not hear in the shadow beyond that muffled sound? Do you not hear some one moving backward and forward? Do you not see that the breathing of that which is behind makes the canvas tremble?" That painted pageant—the second empire—perished because the course of human freedom can not be permanently checked. Likewise whatever stands in the way of the highest development of the individual in our country must perish. There can be no survival of the fittest otherwise.

The cause of anti-alcoholism is freedom's cause and it is neither dead nor sleeping in our country, although some of its fair weather friends are rather somnambulent. The American people, who can always be trusted to act rightly if they only understand the question, will yet dispose of the alcohol problem as they have already disposed of the financial heresies which have asked their ballots. In God's good time the truth shall make us free.

DECEMBER

"Ah, this is the merriest month of the year,
Filled with gladness and joy and with rousing good cheer!
Though there's ice on the ponds and there's snow on the ground,
Green holly and misletoe ever abound
To tell us of Christmas, of hope and of light,
When hearts are all merry, and happy, and bright.
So we laugh at the winds and we scoff at the snow,
And we chuckle the louder the harder they blow."

THE FUTURE OF UNCLE SAM

MR. CHAIRMAN, LADIES, AND GENTLEMEN OF THE OHIO STATE TEACHERS' ASSOCIATION:

ONE evening this week it was my fortune to hear an orator who thrilled the hearts of a great audience with the story of the boundless resources of our country, its history, its people, its stainless flag, and all that flag stands for in the future of the world. Then, as a climax, he asked:

"Will Uncle Sam have a glorious old age?"

The suspense was intense. Every man and woman there seemed ready to spring, if need be, to the defence of the nation's future.

The speaker paused and repeated the question, but I ceased to follow him and began this thinking of my own: What are the sources of a nation's power? Not its armies and navies. These are only manifestations of power. The real strength of a republic is the character of its people, their capacity to govern themselves. What are the feeders of character that make a people capable of self-government and key them to the moral strength that endures the shocks and strains of time? In answer to this question I thought of the spires pointing heavenward all over this land that tell of the worship of God. By whatever name called they stand for religious liberty, and testify to the first source of our nation's strength.

At nine o'clock this morning bells began to ring where the river St. Croix divides our country from the Queen's dominion, and rang on across all New England, across New York, Ohio, Indiana, Illinois, and on across the Rockies to the Pacific Ocean, and from the Lakes to the Gulf. As these bells rang, the millions of children of all classes in this land, the children of the rich and the poor, the home born and foreign born of all colors came together at this call of the states, for it was the states that rang those bells, and side by side, except down south where the colored child has his own schools, these children are now sitting in places the state has prepared and are receiving from your profession, teachers, an education for American citizenship.

Our free public schools are the second source of our republic's strength. The third is a free public press. These three, the church, the school, and the press, are the constructive influences for good in our land which are the hope of our future.

We have another institution which is purely destructive of that character on which our national life depends. It is planted not far from the church or the school, outnumbering the churches four to one, rivaling the schools, and even subsidizing the press. It is the American saloon. Its product, alcohol, sears the conscience, dulls and degrades mental and physical ability, and transforms the kingly achieving citizen into the driveling slave of appetite.

To our protest against this destructive force statesmen replied, "We admit the evil and its menace, but what can we do? This is a government of public opinion. We have no power with which we can prohibit what a majority of the voters want to drink."

"Yes," we replied, "we know that law waits on public opinion, but you can provide for the education of a right public opinion on this subject. The people think a little alcohol is harmless, while in truth a little, far from being harmless, has the power to create an uncontrollable and destructive desire for more, and drunkenness follows.

"Enact laws that will require the nature and effects of alcoholic drinks and other narcotics to be taught, in connection with physiology and hygiene, as a regular branch of study for all pupils in all public schools, and coming generations will be too wise to drink and smoke as their fathers have done."

"Capital idea!" these statesmen said. "We can do that and we will." And they began in 1882 in Vermont, and to-day, after a lapse of eighteen years, the public school study of physiology and hygiene, including the nature and effects of alcoholic drinks and other narcotics, is compulsory in every state in the Union but two, Utah and Georgia, and they are coming.

What is the effect of this study? A friend from Kentucky tells me that whiskey, not beer, is the tipple in the South. The northern states are the beer-drinking states. Our strongest temperance education laws have been longest in force in some of these northern states. What effect has this form of education had on the consumption of beer?

I hold in my hand the report of the last brewers' congress. The opening address of the president of that organization is a jeremiad of lamentation over the decline in the beer trade which he says is "staggering to its own ruin." The brewers report a decrease, for the last fiscal year reported at that congress, of nearly 1,000,000 barrels of beer, in the face of the fact that they sent more than 100,000 more barrels than ever before of this liquor to

our new possessions, with which to civilize the child races which have newly come to our care.

Granting that the Spanish War tax of which the brewers complain has hurt this trade, nevertheless, indications point to the fact that the people are drinking less. Railroads, banks, and other reputable business of to-day refuse employment to drinkers of any type. All this and other like changes in popular habits have come about since we began twenty years ago to talk and teach scientific temperance.

But are we teaching the truth?

Professor Atwater says we are not. He says his experiments proved that alcohol is oxidized in the body yielding energy. We reply this proves nothing in favor of alcohol unless he can show, as he can not, that it at the same time does no harm to the body. Other poisons are oxidized in the body yielding energy, injuring and ultimately killing, but this does not make them foods. Professor Atwater further says his experiments proved that alcohol "protects the material of the body from consumption as effectively as corresponding amounts of sugar, fat, and starch."

Some of the most distinguished scientists in this country say without qualification that Professor Atwater's own figures in his Bulletin 69 do not prove what he claims, but instead show that alcohol acted more like a protoplasmic poison than a food upon the man he experimented on in his famous calorimeter.*

Over against his claim in "Harper's Monthly" for a food value for alcohol because it protects fat, we set the statement of Professor Max Kassowitz, one of the great physiologists of this age, who says:

"It is inappropriate to speak of a protection of fat by alcohol, and there is still less sense in regarding a substance a food because the protoplasm destroyed by it is no longer capable of participating in the vital processes and the oxidation intimately connected with the same.

"Our final sentence against alcohol is pronounced. For the animal and human organism it is not both a food and a poison, but a poison only."

This is but one of many like eminent testimonies. Therefore, without the least fear of contradiction, we assert that Professor Atwater has not produced one particle of evidence which will stand the searchlight of modern science to show that we are in error in teaching the boys and girls of America that alcohol is not a food but a poison, according to standard definitions of these terms.

And yet, in the face of unanswerable testimony, and the fact that the leading medical journals of the country have not supported his claim, Professor Atwater with an air of apparent candor repeated before the last annual meeting of national superintendents, in Chicago, the often told and as often contradicted story of what his experiments had proved in support of his usual criticisms of the indorsed text-books, the target he is always firing at.

Then followed the adoption of this resolution:

"Resolved, That the chair appoint a committee of seven, whose duty it shall be to report upon the teaching of physiology in the schools, especially with regard to the condition and progress of scientific inquiry as to the action of alcohol upon the human system, and to recommend what action, if any, by this department is justified by the results of these inquiries,"

and the appointment of the proposed committee.

This action of the national body of school superintendents makes it the duty of every man and woman in this country who is charged in any way with public school supervision to investigate before the next superintendents' meeting "the condition of scientific inquiry as to the action of alcohol upon the human system," in order that they may act intelligently when this question shall come up for consideration.

Great crises in our national history have always shown that God knew they were coming and had the remedy ready before we hardly realized the peril. The story of "the cheese box on a raft," as the newspapers called the Monitor that sunk the Merrimac and saved Washington in the days of the Civil War, is only one of many like instances which we are so used to that it is a saying of our people, not irreverent I hope, that "God takes care of children, fools and the United States." So you will not be surprised to learn that while it has become your duty to study this question, scientists in our own country and in the laboratories of Europe are now as never before investigating the alcohol question. And there is no Atwaterism in their verdict.

A long list of this work being done abroad was sent me just before I left home for this western trip. These papers are now being put into English, and their digest in leaflet form will be sent you by that ubiquitous society, the Woman's Christian Temperance Union.

Truth can not be muzzled in these days when even the lightning carries its messages.

Will Uncle Sam have a glorious old age?

Not unless we can overthrow the dominion of alcohol, for it is a character poison. What are the chances for that overthrow? Have you seen the report of the last census? I cut this copy which I hold in my hand from the Philadelphia Ledger yesterday morning on the train. It claims to be from the first official report given to the public. From it I learn that the total population of our country is over 76,000,000.

* See scientific testimony in "An Appeal to Truth"

That is a great crowd to bring up to concert pitch on the alcohol question.

How far are we doing it?

New York, the most populous of our states, with 7,000,000 and more people, requires that every pupil in all its public schools shall have at least three lessons a week for ten weeks of each school year in physiology and hygiene, including the nature and effects of alcoholic drinks and other narcotics. These lessons must be oral in the primary, while books must be used that give one-fifth their space to temperance matter in intermediate and grammar grades, and twenty pages for the high school. All pupils must pass the same tests for promotion in this as in other studies. Did not some people grumble over that? Oh, yes. In the days when the North said, "Only one flag shall float over this land," this same class of folks grumbled. There are always grumblers enough to make a noise against every forward movement. They simply represent the protest of belated souls against progress.

Pennsylvania with its 6,000,000 and more people is the next most densely populated state. Since 1885 there has been in force in that state a strong temperance education law which is doing such good work for its people that two eminent physicians of Philadelphia, in an article published recently in the Journal of the American Medical Association, said:

"Echoes of the angels' song,
And holy gladness, calm and strong,
And sweet heart carols, flowing free!"

"A most encouraging sign of our advance in civilization at the close of the century is the increased interest taken by the people in the subject of general sanitation." After granting to local boards of health the recognition their due, these gentlemen say of "the causes of this gratifying public interest in dietetics:

"A large share in our opinion .... may with justice be attributed to the systematic study of physiology and hygiene, including the scientific temperance instruction, which has for some years been a part of the regular course of study for all pupils in our public schools."

Illinois with its more than 4,300,000 people ranks as the third state in population. Every child in its public schools must have four lessons per week for ten weeks of every school year in physiology and hygiene, including special instruction as to the nature and effect of alcoholic drinks and other narcotics. The teaching is oral in the primaries with graded text-book instruction for pupils in other years. Illinois requires the same relative amount of temperance matter in these graded text-books, and the same examinations or tests in this study for pupils' promotion that New York does.

When that law went into force, one of the Chicago dailies, The Times-Herald, I think, said, "This temperance education law in twenty years will make Illinois one of the strongest temperance states in the Union."

Ohio with more than 4,100,000 people is the fourth of our states in population. What is being done here in this education for a sober future? In 1888, the legislature of Ohio in taking action on this subject seemed to forget that the invention of printing, making the printed page an essential method in education, introduced a new era into human history; for they enacted that no text-books were needed in the pursuit of this study. How much intelligent sentiment on the alcohol question has resulted in Ohio from that law I leave you to tell.

With the further legislation on this topic enacted this year I am informed you are not pleased because the penalty of this new statute includes you. But you will admit, teachers, that in a matter so grave as this, in which individual and national life are at stake, there should be a penalty which should fall upon the parties responsible for the enforcement of this law.

Experience long ago showed us that where these laws are not enforced, it is almost invariably the fault of local boards of education. If they, in making out the curriculum fill the time of pupils and teacher actually full with the "Three R's" and other topics, leaving no place in the course of study for this subject, and furnish no text-books as for other branches, and make no demand for tests for scholars' promotion, they are to blame if the study is neglected, and upon them and not on the teachers the penalty should fall. To fine a teacher for

failure to teach this study, if the local board of education has made no provision for it, is hardly fair. If such provision has been made and the teacher then refuses, it would not be unjust for her to be fined.

Allow me to suggest: Go to your local boards of education, call attention to this law, and show that the penalty applies to them also. Tell them you do not ask that this study be pursued every school day of the year. That would more than cover the subject. But ask them—

First, to order for your schools what Illinois requires for this study, four lessons per week for ten weeks of each year for every pupil.

Second, that these lessons shall be oral for primary children with graded indorsed text-books furnished as one means of information for all pupils above the primary, closing with the first year of the high school.

This number of lessons, one hundred and twenty given orally during the three years in the primary, and two hundred and forty with well-graded text-books in the six years above the primary, will cover the subject without unduly crowding other branches, and keep it with a fresh and progressive interest before the child's mind during the habit-forming period of his life.

Less than one-fifth of all this instruction in the indorsed books, including the high school book, refers to alcohol and other narcotics. All the rest is general physiology and hygiene.

That this is not asking for a disproportionate amount of time for these vital topics is shown by the fact that from six hundred to nine hundred lessons in geography are often given in the same time. It is certainly of as much practical value to the child to have a knowledge of the laws of the health of the body he must live in as long as he stays in this world, including the effects of cigarettes, beer, and kindred drinks upon that body, as for him to possess minute geographical information of the uttermost parts of the earth.

Get your school boards to adopt these suggestions, put your best heart, brain, and teaching power into this subject and what will happen?

You will save the children in your schools for an intelligent sobriety as contrasted with the horrors of alcoholism, and you will save Ohio to the position she should fill in this struggle against the worst foe of our republic.

By no combination of these figures showing the population of our different states, and considering what they are doing for the temperance education of the coming generations, can we leave Ohio out without serious loss to the whole country, to say nothing of your loss. And you do not want to be left out. You care for the future of the children of this state and for that of our nation. You can not help caring, for you are "our folks." Either you or your forebears came from New England. I doubt not there are to-day more sons and daughters of the Puritans in Ohio than in Massachusetts. Our children have gone West and foreigners have come to take their places. We are trying to make a good American citizen of the foreigner. But the closest of all ties, that of blood, binds Ohio to us of the East. Your fathers and ours fought side by side for the independence of this country. Ohio stood shoulder to shoulder with Massachusetts for the preservation of the Union in the Civil War, and in the Spanish War you were not lacking. The nation is now asking Ohio's teachers to enlist recruits in this educational battle against our republic's greatest foe, and from your record in the past we can not believe you will not respond. We rejoice in your growth and greatness as the mother of presidents, a growth that will be greater as time goes on and you meet its demands.

Our country to-day is honoring the heroism that climbed San Juan Hill leading unprotected infantry iu the face of the fire of intrenched artillery, and tore down the Spanish flag representative of tyranny, that the stars and stripes, the emblem of liberty, might float in its place. This nation has its pæans of grateful recognition waiting for the heroes in your profession, who will lead the feet of the childhood of this nation up those lofty heights of noble living in which alcohol and other narcotics have no part.

Because the teachers of this country as a whole are a God-fearing, child-loving body of men and women, I believe they, recognizing in the call to this study an opportunity which is God's command, will meet its demands. The law generally requires school boards to do the same, and we must tighten the laws that do not. Therefore, to the question, Will Uncle Sam have a glorious old age? I foresee that he will have something better. As the clock of the universe ticking in millenniums strikes off the last of the first twenty-five years of the twentieth century there will be no more saloons than there are slave blocks now in our land, because the children now in the schools will then be in power. And as time passes and the blood of our people is free from the taint of alcohol and kindred narcotics they will rise to the manhood and womanhood God intended for them, and the rolling years will bring to Uncle Sam a maturity which will grow more and more glorious as his family increases to hundreds of millions of men and women who are capable of a lofty self-government.

From an address delivered in Columbus, Ohio, by Mrs. Mary H. Hunt, Nov. 3, 1900, before the Ohio State Teachers' Association.

We regret that the fourth article in the series, "Nineteenth Century Notes," as well as the high school lesson, must be omitted this month from lack of space.

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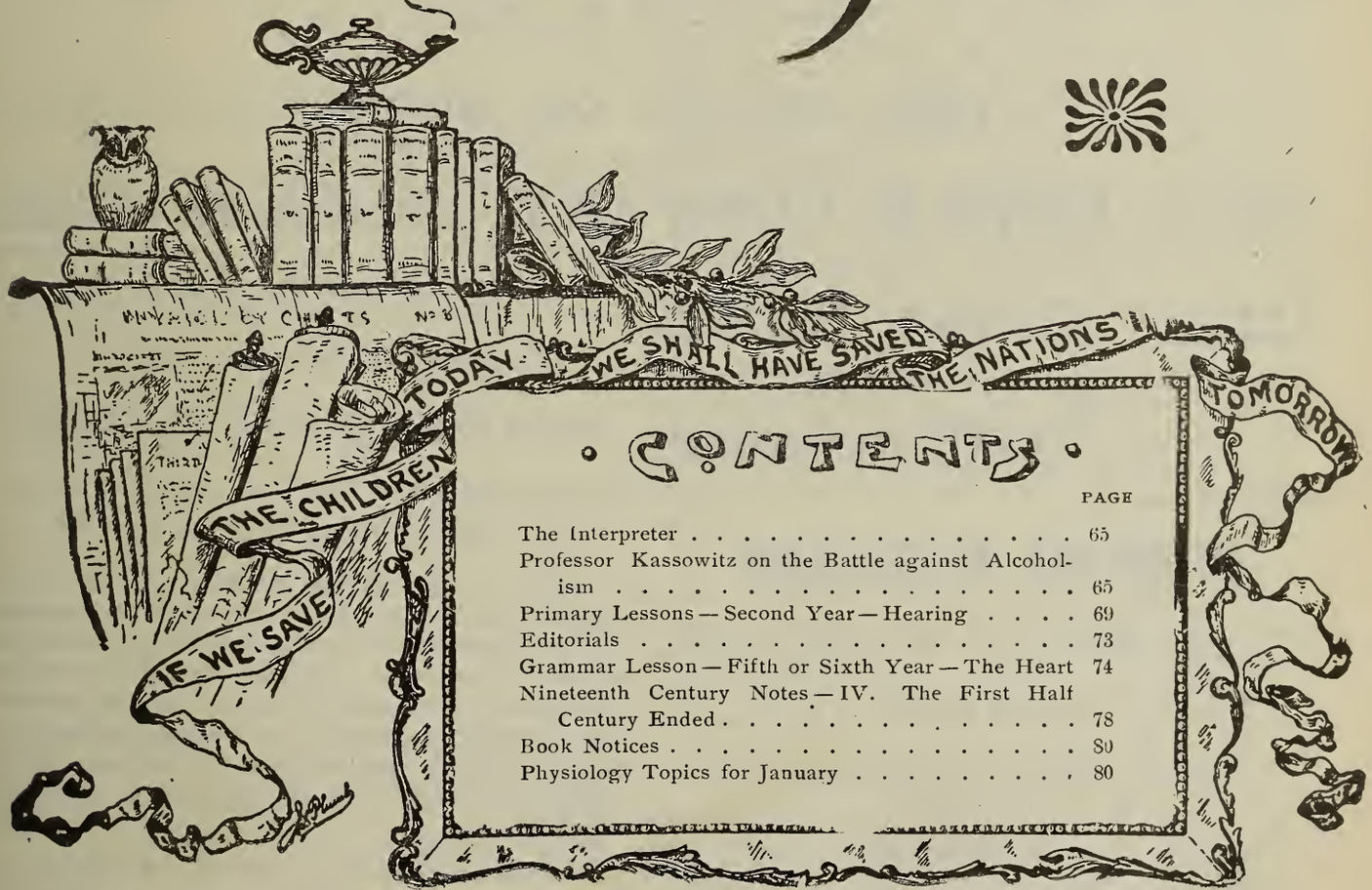

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THE INTERPRETER

The New Year on the threshold stands
With the King's message in his hands;
For so a thousand came before,
And a like royal message bore.
And who, save Love, deserves to read
This Gospel, if the world give heed?
For only she, by day and night,
May tell Time's mystery aright.
"I am the Law fulfilled," she saith,
"Come peace or war, come life or death."
She doth upbuild where others mar,
And Hate and Fear false prophets are.
Through all the earnest years that were,
Love hath been life's interpreter;
Of all the golden days to be,
Love holds the key, Love holds the key.

—FRANK WALCOTT HUTT.

PROFESSOR KASSOWITZ ON THE BATTLE AGAINST ALCOHOLISM

The well known Vienna Clinician, Professor Max Kassowitz, M.D., on several occasions recently has taken a position absolutely opposed to alcohol. In a lecture given before the Vienna Physiological Club, in November, 1898, and published in the Wiener med. Wochenschrift (1898 Nr. 48–51) on "Die Einheit der Lebenserscheinungen" ("The Unity of Life-Phenomena"), he said in conclusion:

"These changed conceptions of life processes . . . would not only be of theoretical significance but would also become deeply impressed upon practical life. For how significant it would be to have not only the scientist but all thinking men clearly determine that alcohol can never be nourishing but invariably poisonous, I need not here amplify. And if I should have helped to bring about the overthrow of the dogmas concerning the nourishing and strengthening character of alcohol, which I must look upon as one of the fatal errors of science, I should find therein a sufficient reward for my trouble."

Since then Professor Kassowitz has repeatedly brought up the alcohol question before a large public, once at a meeting of the Austrian Society against Drunkenness and also in an article in Harden's "Zukunft" and in the Vienna "Times." From an article appearing in the last named weekly, (Nr. 288, Bd. XXIII) entitled "Is Alcohol a Food or a Poison?" we take the following extract:

"That out of the rapid consumption of alcohol have grown the most serious hygienic, moral, economic, and social injuries, that alcohol undermines the health of individuals and generations, that it destroys family life, increases pauperism and fills the jails and insane asylums, is so evident and is by scientific investigation so surely established that no difference of opinion concerning it is held among earnest people."

In the combat against alcoholism the attack can now be made from two sides; from the side of alcohol or from the side of man. The production and sale of fermented drinks can be suppressed or prohibited through direct legal enactment. That is only little understood by us at present. The second way offers a better prospect, the combat against alcoholism by men. Here again we can work in two ways, through punishment or through instruction. "But at best we can punish only the drunkard, never the drinkers who exceed the former by many thousands; and whether either threatening or the actual execution of the punishment will help much may be justly questioned. But one thing is certain, that no liquor laws will hinder any one from making himself sick and miserable by drinking large quantities of wine, beer or spirits, from diminishing his physical and mental working ability, from robbing his family prematurely of their supporter, and of inflicting upon his children the stigma of such an heredity. Here punishment or threatening can never be instituted with any prospect of result.

"For instruction, various ways, again, stand open. Parents can and should instruct their children, teachers their pupils, clergymen their followers, authors their readers. But how little is actually being done in this respect need not be dwelt upon. In the most favorable cases the warning is nearly always against that drinking only which leads to drunkenness and the excess and misdemeanors connected therewith, not against drinking habits and customs, although the amount of damage caused by these, on account of their wide prevalence, is incomparably greater than that which alcohol by itself causes, at least in this country which produces notorious individual drinkers.

"This indifference to the alcoholism that does not exactly lead to complete drunkenness must have somewhere sufficient reason, and since it is not due to any lack of will on the part of those from whom we should expect such instruction, we must look for the reason else-

where, and we find it really in the generally prevailing ignorance concerning the danger to the physical and spiritual welfare from the habitual use of spirituous drinks, or the use of very large quantities such as are consumed upon fair and festival occasions.

"These dangers, at present at least, are known chiefly to physicians, because they learn of their existence from their own patients, or their attention is called to them by more experienced physicians through voice or pen. The young physician not only learns at the clinic that alcohol is the cause of a whole series of very grave diseases, but he notices also that all diseases coming from other causes are more dangerous in the case of habitual drinkers than with others.

"In his later practice, he has opportunity to see how men who are known as 'jolly company,' who are accustomed to take their early glass and to boast that no one is able to drink them 'under the table,' either die suddenly of heart failure in the bloom of their youth, or succumb to influenza, or come to a miserable death from the results of heart weakness or kidney disease. As an insurance physician, he knows that his company rejects the moderate drinker as too great a risk, and that the average longevity of the abstainer exceeds that of the moderate drinker by many years. All this, and much more which illustrates vividly the harmfulness and danger of prolonged use of alcohol is known to a nicety by every medical man of experience, and one ought therefore to expect that physicians at least would take pains to let their patients and all those with whom they come in contact share in this highly important knowledge.

"But not only does this seldom happen, but there is no doubt that physicians even contribute to making permanent the false views concerning the value and effects of alcohol which are so generally disseminated; and that they themselves often directly recommend, not only for a few hours or days but for longer periods, the use of strong (alcohol-rich) wines, of strong beers, and even of brandy; and that manufacturers and sellers make use of their recommendatory testimony in newspaper announcements. Thus upon one side we have the undeniable fact that alcohol acts as a poison, that very large doses of the poison can cause death within a few hours, that the continued use of a not immoderately large quantity certainly conceals in itself a true Pandora's box of dangerous evil; and upon the other side the recommendation of the same poisonous and destructive substances as strengthening and health invigorating agents which a greater part of the physicians would not for all the world spare from their medicine stores. Therein lies an inconsistency so notable that it is well worth while to follow up the origin of such a fatal error, and only thus can these inconsistencies be overthrown."

Kassowitz finds the explanation in this, that the teaching which considers alcohol a food because it is burned in the organism has still held to this formerly accepted dogma in spite of many newer investigations which have shown its indefensibility. But Kassowitz thinks that theory and empiricism accord in that the two contradictory characteristics of a food material and of a poison can never be combined in one and the same substance, because the poisonous qualities of a chemical substance consist in the fact that it destroys parts of the living organism, while the nourishing property of a food rests upon the fact that it enters into the construction of the living substance and contributes to the reconstruction of its waste particles through the vital functions.

"It is impossible for one and the same material to perform both these directly opposing functions, and it is absolutely determined that alcohol possesses in a conspicuous measure the power to destroy and to kill living parts; thus it can not possibly be employed at the same time to preserve living parts."

The assumption which ascribes food properties to alcohol appears indeed to Kassowitz, upon the ground of this simple theoretical consideration, as a scientific error, the removal of which is the most important preliminary condition to an effectual battle against alcoholism.

But in addition to this theoretical consideration comes now the physiological experiment. A whole series of substances has long been known which, without doubt, like glycerine, lactic acid, butyric acid, are burned in the animal body, but which nevertheless are not able, even to the smallest extent, to take the place of necessary food in the preservation of the animal body; thus, numerous metabolism experiments, particularly those of Miura set on foot by Professor von Noorden, have indicated that alcohol also belongs to this group, that is, that it is a fuel without nourishing power. Miura found that the addition of alcohol to the food before taken, not only causes no diminution of the nitrogen output, and does not prevent the loss of body material (as is regularly the case with the addition of sugar or fat), but that, on the other hand, the nitrogen output following this addition of alcohol may become yet greater than it had been without this addition. This augmentation of nitrogen output as the indication of increased protoplasm destruction shows us *a posterori*, therefore, what we indeed must definitely expect from the beginning, that alcohol as an undoubtedly poisonous combination not only can not take part in the building up of protoplasm, but that, like all other irritants, it always destroys parts of the living substance. Far from strengthening the weakened organism,

this substance, by continued use, is always able only to weaken and injure it, while it reduces its amount of living and working material. At the most, the mildest verdict upon these widely disseminated irritants may be thus formulated, that the injury which the poisonous effect of alcohol in quite small doses will cause is possibly so small that the healthy organism can adjust itself to it. In the present state of our knowledge we can not speak of it as a benefit, while overstepping a very small limit will surely change the continuance of health in one way or another. But under no circumstances and in no form should alcohol be permitted to children, because in not excessively large amounts it is often sufficient to cause serious consequences, for instance, enormous liver swelling, which has been observed by myself and others.*

"Thus and only thus runs the real truth concerning alcohol which is established at the same time by theoretical, empirical and experimental methods, and only by the widest possible dissemination of these truths, according to my opinion, is a checking of alcoholism to be expected. But this widespread dissemination appears to me to be possible only in the following manner. The beginning must be made by the teachers of the coming medical generation, and without doubt in this manner, — that on every suitable occasion they state to their pupils in the most impressive manner, and in keeping with the importance of the topic, the results of sober, prejudiced inquiry here outlined, and that they exert themselves to impress with earnestness upon their hearers their well-grounded convictions. Those who become trained physicians in this sense will then surely not neglect their sick, and what is still more important, they will use all their influence to instruct all accessible people in health concerning the real facts of these things, and instead of recommending alcoholic drinks for strengthening, they will again and again raise a warning voice and exert themselves to demonstrate in an effective manner the dangers always associated with the continued use of larger quantities of alcohol. In these ways, then, the teachers, preachers, and all those who from their position and calling in life are able, will also instruct others in a knowledge of the truth, and the latter, in turn, will take pains to extend it as much as possible in every way. If once we reach the point where every accountable person is thoroughly instructed concerning the fact that alcohol possesses no nourishment, and that the habitual or repeated use of alcoholic drinks in any considerable doses is always associated only with detriment to the health, then will the alcoholic be, perhaps not yet extinct, but much more seldom seen; and those who for all this, still continue to flood the brain, heart, liver, and kidneys with this destructive substance will not be able to shield themselves with ignorance, as is done to-day by most men, but will know to what dangers they are exposing themselves."

"Every pine and fir and hemlock wore ermine too dear for an earl;
And the poorest twig on the elm tree was ridged inch-deep with pearl."

We have every reason to be satisfied with this decided stand taken by Professor Kassowitz. He puts his hope for the battle against alcoholism upon the coming generation of physicians and demands, certainly with good reason, that they be equipped by their teachers with the necessary knowledge of this subject. But in our opinion this theoretical teaching about the physiological effect of alcohol is absolutely insufficient to reach this end. As far as instruction is concerned, a true enlightenment about the whole pathology of alcohol is at least as important as the knowledge of the physiological effects. But in the last instance it is not only a matter of theoretical teaching but of action upon the will power, therefore less a problem of instruction than of education. The physician should be educated to become a combatant of alcoholism. For this he needs,

* In three cases I have observed in children who were accustomed to drink daily wine and beer in not very large quantities, on the occasion of the outbreak of an acute disease (measles, influenza) the absolute form of alcohol insanity.

besides the necessary knowledge, moral courage, inspiration, a sense of duty, and immovable persistence. How can a teacher who is himself a slave to drinking customs awaken these qualifications in his pupils? How can he implant in his pupil the conviction that the subject is a sacred one when he himself is not willing to sacrifice a social glass? Will he find the necessary independence and courage to put his whole being into his words if he feels himself not free? And what influence can he exercise upon his pupils if with his words he brands alcohol as a dangerous poison but in his life acknowledges it as a desirable food? As in all education, so here, personal example is the most valuable and determining thing. The only admissible consequence from the postulate of Kassowitz is the demand for total abstinence on the part of teachers of the coming generation of physicians.

But experience has already decided this long ago. In the Swiss universities the number of alcohol opposers among the students has reached far beyond a hundred, the academic abstinence society "Libertas" counts dozens of medical men in its ranks, and every year a number of abstinent physicians step from the universities into practical life to take up with energy in their profession the battle against alcoholism. The merit of this belongs absolutely to the university professors who have set before their pupils the personal example of total abstinence, above all to von Bunge and Dr. Forel. And still these teachers represent such branches as have, as a rule, little influence upon the young medical student, such as physiological chemistry, physiology, and psychiatry. It is wholly incalculable how much good could be done if the most influential professors of medicine who have shown themselves partly indifferent and partly belligerent would unite themselves with these physiologists and psychiatrists. A half dozen of them would be sufficient as officers to lead a whole army of young medical opponents to alcohol. May this decisive stand taken by Kassowitz sharpen the conscience and bring an end to the shameful condition in which those who might do most do least.—Dr. Hermann Blocher, Basel, Switzerland.

"Your son," said the school teacher, "is very backward in his studies."

"That's funny," mused the father. "At home, in conversation with me, he seems to know it all."—[Educational Independent.

"I hear you, blythe new year, ring out your laughter
And promises so sweet;
I see the circling months that follow after,
Arm-linked, with waltzing feet."

THE NEW YEAR

"O'er the mountains wild comes a little child,
And all the untrodden ways
Are blooming bright 'neath his steps of light,
And the valleys ring with his praise,
And the morning glints on his brow, and tints
His cheek with its rosy rays.

"The song he sings and the joy he brings
Are wonderful, sweet and rare,
And the future glows like a fragrant rose
'Neath the wand that he waves in air;
And with kisses sweet and with smiles we greet
The beautiful glad New Year.

"So cover the head of the Old Year, dead,
With a cold cold shroud of snow;
Life is sweet, but time is fleet,
And the years must come and go—
The beautiful years, with their smiles and tears,
The years that we all love so!

"Kisses and tears for its joys and its cares,
The year whose steps have passed
Into silence sweet, where no fall of feet
Is heard in that far dim past.
To the old—his due; but we love the new—
The sweetest rose is the last."

WAS HE RIGHT

Teacher — "Spell wrong." Johnny — "R-o-n-g." Teacher—"You know that isn't right." Johnny—"Course it isn't. You told me to spell wrong."—[Ex.

THE AFTERWARD

The kiss of dawn is on the sea:
The early matin singers rise,
And send their songs up to the skies,
Reaching the heights where I would be.
My day is like the sea. Its face
Is tranquil as a gray-toned lake—
Quiet, eventless, soft with grace.
I know ere night the storms may break,
Yet trustfully I sail away
Toward the East, to meet my day,
And leave the Afterward with God.

—Marianne Farningham.

Donald had been corrected for some slight misconduct, and before the clouds had entirely rolled away he was asking to be given some special pleasure.

"I can not say yet," said mamma. "I'll see how you behave in the meantime."

With a smile that was almost angelic, Donald responded, "Mamma, dear, there isn't going to be any more mean time; I'm going to be good all the time now."—[Youth's Companion.

Primary Lessons

SECOND YEAR

HEARING

EDUCATION is of value only as it translates itself into action. The trained man must do more than learn to see and hear and use his other senses effectively; he must know how to act on the moment and with unerring judgment from the impressions received.

In the schoolroom it is often easier to repeat directions than to insist upon attention and prompt obedience, but it is ease purchased at the expense of the child's best good. He grows more and more careless until the habit of inattention is fixed. When he gets out into the business world he finds there is no place for those who can not measure up to an emergency. They are shoved aside and must fall to the rear.

There are two great armies in the world, the workers and the idlers, and our pupils must soon join the ranks of one or the other. If we are carving a statue the work can be done tomorrow as well as to-day, but the fashioning of character can not wait. It goes on in spite of us. If we would modify it we must act at once.

A practical education depends first of all upon sense training. We must teach the child the right use of his senses, we must help him to train them to ever better work, and we must show the vital connection between knowing what ought to be done and doing it.

Outline of Topics

- The organ of hearing
- Parts of the ear
- Hearing in animals
- Training the sense of hearing
- Care of the ears

THE ORGAN OF HEARING

Bring into class a picture of Pekin or any walled city. Ask what the gates are for; then why houses are built with windows. Show that our bodies also have doors and windows, seven of them, placed quite near together. Have the children point to each. Which are open all the time? Which can we open and shut as we like?

Have the class make drawings of each or model them in clay. Who knows what these different openings are for? We shall try to find out to-day about two of them.

Strike a cord on the piano while the children sit with closed eyes. Then have them open their eyes and tell what you did. Ask how they knew.

How many of these doors do we have to hear with? Why are they placed one on each side of the head instead of close together? What is their shape?

PARTS OF THE EAR

Tell the children that when some one plays the piano in the room where we are, the sound comes to us through the air, although we can not see it. When it gets to our ears it has still a little journey to take before it reaches the part with which we hear. This part is called the brain. It is inside the head where it can not easily be hurt.

At this point in the lesson have ready a blackboard drawing in outline of the ear, showing the folds of cartilage, the outer passage, the drumhead, the middle and inner chambers, and the auditory nerve. It may be well to have two drawings, one of the same size as the human ear, the other enlarged to show the parts clearly. For primary pupils all intricate mechanism will, of course, be omitted, and only the simple parts here mentioned shown.

We have all read fairy stories telling about wonderful little people who go wherever they like without being seen. We know nowadays that there really are no such people, but after all we may think of the different sounds we hear as fairies, because they can do the same thing.

When any one strikes the piano we can imagine they are flying through the air to these little doors in our heads. Then they hurry along this passageway. Who can find it in the drawing? Point to it in your own ears. It doesn't take the sound fairies a great while to get to the end for it is only about so long. (Drawing on the board a line an inch in length.)

If we were small enough to travel with them along this tiny road we should have to stop at this point because a little wall is built right across the further end with no door or window.

But this doesn't stop sound fairies. They go right through to the middle room you see in the drawing, then through a little window to the inner room of all. Here they find many little roads leading up to the brain, of which they can take their choice. When they finally get there we can imagine that they tell the brain in fairy language what was played on the piano.

Think how much faster sound fairies can travel than we can. When somebody strikes a note on the piano, or a bell rings, they hurry so fast to tell us about it that we hear the sound

almost immediately. Let us try them now with something else.

Tap a desk with the ruler; walk across the room; speak; rustle paper. Then ask the children one by one to imagine they are sound fairies and to show how they would get to the brain from the point where these sounds start.

Show how that part of the outer ear which projects from the head is curved to catch as much sound as possible.

Teach the middle and inner parts of the ear to primary pupils only as paths by which sounds can get to the brain.

HEARING IN ANIMALS

Bring a pet cat into class and have the children examine its ears very gently. How are they different from ours? Call attention to their shape, the covering of hair, and their power of motion. Explain the reason for the downy hairs inside, that they help to keep the ear clean and are found in our own ears for the same purpose.

Show pictures of various animals. Let the children point out likenesses and differences between the ears of each. Help them to tell how the ears of a bull dog differ from those of a hound or terrier. Where on the head are a cow's ears placed? those of a horse?

Call attention to animals in which the ears hang down; to those in which they stand upright; to animals which have very small ears; to those with large ears. Find how many differently shaped ears the children have noticed. Describe the ear of a hen, showing the same if practicable.

Ask the children to find what animals can move their ears most freely; which have the most acute sense of hearing; what animals can hear more quickly than man; which ones are slower of hearing.

Explain why animals need the sense of hearing, and why, in many cases, theirs is so acute.

TRAINING THE SENSE OF HEARING

"See what a lovely peacock feather we've found," cried two bright-faced little girls. "Oh, grandma, may n't we put it in your cap?"

Grandma smilingly bent her head to be decorated, and four eager little hands were soon at work.

"That's just the place for it," chorused the children, when the feathers nodded gaily over grandma's white cap.

"A peacock feather got me into trouble once," said grandma. "Would you like to hear about it?"

The children were always ready for a story, so grandma began:

"When I was about your age, Ada, I used to be a very heedless girl. I could hear perfectly well, but I seldom listened to what was said to me, or remembered it afterward.

"One day I was playing in the yard when mother came to the door.

"'I'm all out of yarn, Hester,' she said, 'and shall have to run over to Sister Sarah's for enough to finish your father's stockings. Stay right here till I come back and look after baby if he wakens."

"'Yes, mother,' I said, and off she went."

"Before long, neighbor Park's peacock came down the road. I ran to look at his lovely feathers and wished I had one to trim the hat I was making for my doll.

"'Perhaps one will drop out!' I thought, so I followed close behind, forgetting baby and everything else.

"For more than an hour I kept the peacock in sight, and at last a small feather really did fall. I picked up my prize and ran home.

"Just as I entered the gate there was a loud splash in the back room. I hurried in and found my dear little baby brother struggling in the large trough of water which stood there. He had wakened and was probably playing in the water when he lost his balance and fell in.

"If I had been five minutes later he would have been drowned. Mother found me kissing him and crying all in the same breath when she came home. She grew very white when I told her how careless and disobedient I had been.

"'Daughter,' she said at last, 'you must conquer this bad habit of inattention or it will conquer you.'

"Then she led me up to the large looking-glass in the parlor and bade me look at my two ears. 'They are little doors leading to your brain,' she told me.

"'Every time you hear what is said to you and try to do as you are told you are training your brain aright as well as your body. Every time you are careless and inattentive, you give your brain bad training. You have had a pretty sharp lesson to-day, but I shall not be sorry if it helps you to overcome a bad fault.'

"I never forgot mother's words," said grandma, "and I've told you this story to help you to pay attention when any one speaks to you, and to remember what is said.

"When my brother grew older mother taught us both little games to train our sense of hearing."

"Oh, grandma, won't you show us how to play them?" asked both children eagerly. "We are so tired of all our old games, and yours are always such fun."

"Very well," smiled grandma.

"Mother used to say the brain was like a person shut up in a dark room. It can never get out, and all it knows of what is going on outside it has to get through the little doors of sight, hearing, touch, smelling, taste, and feeling.

"To-day we'll play we are the two little hearing doors, and see how much news we can carry to the brain.

"Shut your eyes tight and tell me what I am doing."

"You are whistling!" cried Alice and Ada in the same breath. "Why, grandma, I didn't know you could whistle."

"Perhaps I can do some things you don't know about," said grandma, with a gay little laugh.

"Shut your eyes again! Now what am I doing?"

"Tapping the table."

"Tearing a piece of paper."

"Shaking your dress," guessed the children in turn.

"Right," said grandma. "Now listen and see who can hear the greater number of sounds outside the room."

"Some one is running the sewing-machine."

"Billy is barking."

"A carriage is passing."

"The wind blows."

"I hear a robin sing."

Almost every moment one or the other of the girls would hear a new sound, and nearly always it was recognized.

The new game was so fascinating it was hard to stop for supper, but grandma promised to play it again with them some time, so off they went.

"Grandma smilingly bent her head to be decorated."

"It's the very nicest game we ever played," the children declared; "and you are the best grandma to show us how."

"Bless their hearts!" said grandma. "I hope they'll grow up with quick ears and well trained brains, and I think they will."

Give your pupils similar drill, until they can recognize at once all familiar sounds. Teach them to tell the various songbirds by their notes; to know all common animals by the sounds they utter, and to distinguish between the different sounds of each: for instance, the cackle of the hen after laying, the call to her chickens for dinner, her alarm signal when danger approaches, and the low note of content.

Practice with the children until they recognize people they know as soon as they hear them speak. Read aloud short sentences or groups of figures for oral reproduction. Above all, train even the youngest pupils to hear directions when first given, and to carry them out immediately, remembering that much more is involved than the matter at issue, for as the child learns to use his senses and to act upon the impressions these convey, he is unconsciously forming the habits of a lifetime and determining his own future.

CARE OF THE HEARING

A distinguished aurist sums up many of the most important rules for the care of the ear in the telling sentence, "let it alone."

Make it very clear to the little ones in your classes that in order to have good hearing and to keep it until late in life, they must guard the ears in every way.

Notice how they put on their hats and caps and do not allow these to be pushed down between the head and ears. Tell the children that such practice makes the ears stand out from the head in an awkward fashion, and also renders them liable to frostbite, chilblains, and injury.

Call attention to the harm done the lobe of the ear by wearing earrings. Many people think this practice is helpful to sore eyes, but there is no truth in the statement. Explain that unless the ear is pierced by one who understands his business blood-poisoning is likely to follow, and that in all cases some deformity of the ears usually results. Show pictures of the earrings and noserings of savages, and tell the children that such barbarism may be expected in those who do not know better, but not in civilized people.

Show from the blackboard drawing the curves and narrowness of the ear-passage with its little hairs and wax-covered walls. Help your pupils to understand how all these provisions guard against the entrance of dust and insects.

Explain why the greatest care should be taken in washing the outer ear, and why no hard

substance should ever be put into the ear-passage. Make it clear that in health this tiny canal keeps itself clean and we have only to let it alone. Digging and poking in it only makes more wax collect and is likely to cause earache. Show them how to keep the outer ear clean by gently wiping its curved surface with a damp cloth. Explain that this is safer than allowing water to enter the ear. The ear should be gently dried in all such cases to prevent one from taking cold.

Tell the children to put bits of cotton lightly in the ears before going in bathing or swimming, to protect the delicate drumhead from the force of the water. The cotton should always be removed immediately after coming out of the water.

Impress upon their minds that if any substance accidentally gets into the ear a physician should be consulted, and that more harm may be done by unskilful poking in the ear than by the foreign substance itself.

Little children often suffer from earache. Tell them that the best remedy is usually dry heat. Going to bed with an old-fashioned nightcap on the head, and with a hot brick or hot water bottle placed against the aching ear will usually give relief.

Blow up a small paper bag and show how slight a blow will split it open. Point out from the drawing the tiny membrane stretched across the drumhead, and explain how this may be ruptured by a slight blow on the ear.

Show from a chart or drawing the tube which connects the ear with the throat and help the children to realize that smoking cigarettes or using tobacco in any form is likely to inflame both the throat and the lining of this tube.

Show how inflammation causes pain and swelling and is likely to injure the hearing. All drinks with alcohol in them may hurt the hearing in the same way. If the hearing is dulled and injured can we hope to have an active brain?

All children should have their hearing tested upon entering school and occasionally afterward, especially upon recovery from any disease. If any defect be found they should be given every advantage in seating, and a physician consulted as to the treatment necessary. Apparent dullness is often due entirely to inability to hear, and we owe it to ourselves, to our pupils, and to the community to make every effort to remove its cause.

AUTHORITATIVE QUOTATIONS

VALUE OF EARLY TRAINING

Children may be so trained as to respond in the right way to any duty in life. If they resolve to do a thing, the moter centres in their brain, trained by fitting early exercise, will be better adapted for initiating the proper movements.—Reuben Post Halleck, M. A., Yale University.

ALCOHOL LESSENS SENSIBILITY

Very small doses of alcohol diminish the sensibility of hearing.—J. J. Ridge, M. D.

ALCOHOL DULLS THE HEARING

Small doses of alcohol invariably dull the special senses. One can neither hear, see, nor feel so rapidly or accurately when a dose of alcohol has been taken.—[Medical Pioneer.

ALCOHOL AND TOBACCO INJURE THE HEARING

The use of tobacco often injures the sense of hearing. It affects the throat and Eustachian tubes, producing an inflammation which extends into the ear, seriously affecting the delicate parts. The use of alcohol frequently has a similar effect. If one would have a delicate sense of hearing he should not indulge in the use of either tobacco or alcohol.

—W. E. Baldwin, M. D.

CIGARETTES LESSEN MENTAL ABILITY

We have never yet found a bright active pupil in any of our schools who used cigarettes. On the contrary, we have found many dull, listless, backward pupils whose memories were treacherous, and whose habits and natures were positively bad, who did use cigarettes, and I have come to believe that it is an utter impossibility for a boy to indulge in cigarette smoking to any great extent and at the same time succeed in study.—Frank K. Graves, Prin. Graded Schools, So. Royalton, Vt.

SMOKING LEADS TO DISEASE OF THE EAR

Tobacco smoking, by inflaming the throat, often causes irritation about the openings of the Eustachian tubes from the ears, thus diminishing the circulation of air in the middle ear and making the part more subject to disease.—Henry F. Hewes, M.D., Harvard University.

CIGARETTES DULL THE SENSES

I consider the cigarette the most dangerous form in which tobacco is used. It is the universal testimony of our teachers that those pupils who are in the habit of smoking cigarettes are invariably sluggish, languid, dull, unreliable mentally, often incapable of applying themselves to study, and without exception the poorest students in school.—E. B. Neely, Supt. Public Schools, St. Joseph.

TOBACCO DEFILES THE USER

Touching the matter of person, tobacco is unclean; touching the matter of health, it weakens multitudes; touching the manner of morals, it belongs to the things of darkness.—B. L. Whitman, Ex-Pres. Colby University.

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"Gracious, white-robed, with smiling, mystic eyes,
Laden, the New Year stands;
Pure heaven, ere we may touch the smallest prize,
Strengthen and cleanse our hands!"

THE NEW CENTURY STUDY OF THE ALCOHOL QUESTION

THE century just closed witnessed a remarkable increase of alcoholic and other narcotic habits among the masses of the people. The spread of these habits and their disastrous results accompanied and kept pace with the rapid extension of communication and transportation until the swift following consequences led to active efforts to check their progress.

For nearly half a century heroic efforts were made to save the people from intemperance by the time-honored method of "moral suasion." Eloquence which the world has seldom equalled, and appealing from the moral standpoint to every shade of human emotion, was poured out from platforms everywhere. But the per capita consumption of alcohol steadily rose.

Twenty-five years ago a new method was inaugurated,—that of scientific investigation of the physiological results following the use of alcoholic drinks. Of this method Professor Kraepelin, Professor of Psychiatry in the University of Heidelberg, says: "In the struggle for and against alcohol the mightiest weapon will always be scientific investigation, which, untrammeled by rancour or the favor of partisanship, seeks to establish facts."

EFFICACY OF THE SCIENTIFIC METHOD

The scientific method which appeals to reason and self-protection has already begun to show results. In the United States, the nature and effects of alcoholic drinks and other narcotics, with other hygiene, is a compulsory study for all pupils in all public schools except in two states, Georgia and Utah. This study began fifteen years ago in the states where it was first introduced. The result is that in the United States the per capita consumption of alcoholic liquors, as shown by the Internal Revenue Reports, reached its highest point in 1893, since when it has tended to decline.

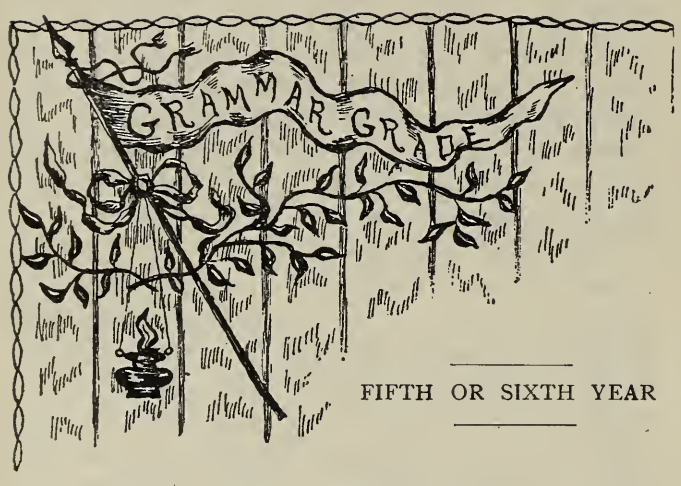
In Europe, the scientific investigations carried on in the famous physiological laboratories have led to the formation of total abstinence societies whose centers are in the great universities, whence the truths about alcohol there revealed are being promulgated to the world.

The total abstinence society of Germany includes one hundred and fifty physicians. The famous universities of Switzerland, Basel and Zürich, are headquarters for active promulgation of the scientific reasons for total abstinence. In France, the Academy of Sciences carried on an extended series of physiological investigations which brought them to the conclusion that "alcohol is always a poison;" and in England the scientific method has gained for total abstinence some of the most prominent men in the medical profession.

FUTURE STUDY OF THE ALCOHOL QUESTION

The new century study of the alcohol question is to be pursued on a scientific basis by the whole people. To this all indications now point. The recent erroneous assertion thrust upon the people by Professor Atwater, that alcohol is a food, makes it necessary for the public in self-defense to understand exactly the grounds upon which that claim rests. The recent action taken by the National Association of School Superintendents appointing a committee "to report upon the teaching of physiology in the schools, especially with regard to the condition and progress of scientific inquiry as to the action of alcohol upon the system," binds them to a thorough study of the question.

A series of articles analyzing the condition of scientific inquiry concerning the alcohol question as it now stands is being issued by this department, under the title of "The Progress of Scientific Inquiry as to the Action of Alcohol on the Human System." It will take up as briefly as possible the points involved in the question, "Is moderate drinking harmful?" and will give the results of accredited original investigations, in the language of the investigators themselves as far as possible, together with the opinions of unbiased specialists. Full references to original literature will be given for the benefit of those who are able to pursue a more exhaustive study. This is not a subject so abtruse that the general public can not understand it. The people are quite competent to weigh all the arguments pro and con when put before them in plain terms that will not befog. These leaflets will be issued in rapid succession, and it is urged that all friends of total abstinence unite in giving them wide distribution. They may be obtained at the national department of scientific temperance instruction, 23 Trull Street, Boston, Mass., for thirty-five cents per hundred.



FIFTH OR SIXTH YEAR

THE HEART

"WANTED! a boy." At this season of the year such a sign is displayed in many windows, and even incompetents may be in demand for the time being. But only a few weeks will elapse before the weeding process begins and all undesirable candidates are again out of work.

What is the process of selection? Who are the boys that are always sure of employment? First of all, they are capable; quick of eye, strong of muscle, stout of heart. And to make themselves such they are willing to order their lives accordingly.

"If you mean to be a surgeon," said a distinguished specialist to a bright-faced boy, "you will have to give up base-ball. It is spoiling your hands. Can you do it?"

The boy hesitated. He would rather play ball than eat his dinner.

"Yes, sir," he said finally, "I would! I would give up anything for the sake of my best."

This is the spirit which ensures success. It was base-ball against the boy's chosen profession, and he wisely gave up the pleasure. With many lads the choice is between success and cigarettes. They think they can have both, but it is no more certain that base-ball unfits the hands for the delicate work of a surgeon, than that the poison of tobacco will prevent the growing boy from becoming the well developed man he might otherwise be.

School work in physiology should make this clear. It should show the physiological effects of all narcotics upon the different organs of the body so fully that every pupil will understand them and be able to choose intelligently for his future. The accompanying lesson on the heart is in line with these suggestions.

OUTLINE OF TOPICS

USES OF THE HEART

- To distribute food
- To distribute oxygen
- To remove impurities

STRUCTURE OF THE HEART

- What the heart is made of
- The arrangement of valves
- How its structure fits it for work

CARE OF THE HEART

- What it needs
- Effect of good care

DANGERS TO BE AVOIDED

- Overwork
- Poor food
- Bad air
- Narcotic poisons

USES OF THE HEART

Study of the circulation of the blood, including the work of the heart, should follow immediately that of food and digestion. Show the relation between these topics,— that the blood is the great channel of communication between all parts of the body. How is it like a great river system, or a network of railroads in this respect?

If near a large town or city take the class into the pumping station and show them the huge engine which keeps the water flowing through the entire system of pipes.

Study with them the water system of the town: finding where the water comes from; how it is distributed through the city; how the pumping engine works; the different sizes of pipe used in the mains, side streets, and houses. Then take up the drainage system; showing how the sewage is collected from the houses and streets and finally disposed of.

Bring out the fact that the health and growth of every part of the body depends on the nutriment it receives and the waste it gets rid of; just as the well being of a town depends on its food and water supply, and on the disposal of its sewage.

What has the heart to do with the nutrition of the body? Have the class find how the digested food gets to the heart, and why it is sent from there to the lungs before going to all parts of the body.

Study the uses of the two sides of the heart. Why is there no direct connection between them? Why is the left side thicker and stronger than the right?

Have the class find what other essential to life is sent over the body by the heart's action. How does the necessary oxygen get to the heart?

Show what the heart has to do with the disposal of bodily waste. What becomes of the air which has lost oxygen in its passage through the body? How does it get from the heart to the lungs?

STRUCTURE OF THE HEART

Sum up the different kinds of work done by

the heart. Then study its structure. Show the carefully washed heart of a sheep and let the class decide what it is made of. Notice its shape, the relative thickness of its parts, the different chambers and valves. Have the class find which way the valves open and explain the reason.

In what ways is the structure of the heart adapted to the work it must do? What would be the effect on its work if it were made of bone instead of muscle? if it were made of fat?

Get reasons from the class why all parts of the heart are not of equal thickness; why the ventricles are larger than the auricles. Ask what prevents the blood from flowing backward, and keeps it always moving in one direction?

Explain how the heart is able to send all the blood, amounting to about one-thirteenth of the person's weight, to the lungs, and to the furthest extremities of the body. Have the class estimate the average number of times it does this in every twenty-four hours. How high would one have to lift a one-pound weight to equal the daily work of the heart? What would happen if the heart should stop beating? When does the heart get its rest if it must beat continually?

Ready for a frolic in the snow.

CARE OF THE HEART

One of the difficult parts of hygiene to make clear to young students is how they can help or hinder the work of organs which they never see.

In the case of the heart, let them find first how far they can control its beat. Can they stop it entirely? Can they hasten or retard its action?

Ask them to have some one count their pulse after lying quietly on a couch for five or ten minutes, taking, meanwhile, long, deep breaths. Then, immediately after a hard run of two or three minutes, have the pulse again counted. What is the difference in the number of beats? What has caused this difference?

Explain how the action of the heart depends on that of other parts of the body: how breathing faster or slower than usual effects it; how exercising the arms or legs can make it beat faster; what effect an outdoor life would have upon its structure or work.

Help the class to find how the heart is nourished. Then consider with them what it needs in order to increase in size and strength as the person grows.

What is the effect on the muscles of the arm of nutritious food, constant exercise, sufficient rest? Why may a similar effect of such care be looked for in the case of the heart?

Show by a diagram the two sets of nerves controlling the heart. Why is each necessary? How would the loss of either affect the work of the heart, and through it the work of other organs? Explain how the health and proper working of these important nerves depends on the food one eats, the exercise he takes, the early hours he keeps, and how these nerves, in turn, direct the movements of the heart.

DANGERS TO BE AVOIDED

Have the class make a list of the bodily organs which depend on the heart for ability to do their own work. Let them find what the heart has to do with the brain and our power to think and study; with the muscles when one runs or lifts; with the growth of the bones; with digestion, respiration, and all functions of the body.

Find how the heart compares in strength with other muscles in order to be equal to the work it must do. If it should be overworked or strained what parts of the body would suffer with it?

Bring out ways in which the heart may be overworked. This is most likely to occur in the case of delicate boys and girls who try to keep pace with their more robust companions. But even the strongest may over-estimate their powers and put too great a strain upon immature muscles. Teachers and parents should point out this danger and have constant supervision over young people, especially those just entering the age of adolescence.

Study the effect of improper food, that which is either poor in quality or badly cooked, upon

the action of the heart and its structure. How will a poorly nourished heart react upon the general health?

In pointing out an evil, always suggest a remedy. Have the class in this connection briefly review the subject of foods, and be able to suggest those which will tend to nourish and strengthen the heart.

The dangerous effect of narcotics upon the heart is so widespread and so insidious in its approach as to require special emphasis and explanation. The difficulty lies in the inability of the youth to connect the first innocent-looking cigarette or glass of beer with the disastrous effects which surely follow the habitual use of these narcotic poisons.

The class have found what are the requisites to a sound healthy heart. Take up now the effects of tobacco and alcoholic drinks upon this organ, and show how utterly opposed these are to its health and vigor.

Classify with them the statements of their text-books on this point. Then take up in a similar way the authoritative quotations in connection with this lesson. The following order may perhaps be observed:

What are the effects of alcoholic drinks upon the heart's structure? upon its work?

To what are these effects due? To what extent may each react upon other organs of the body? upon the health of the user?

What is fibroid degeneration of the heart? fatty degeneration? How do they differ? Why is each a disadvantage? How does each affect the heart?

What is the result when the walls of the heart are weakened? When the valves become diseased?

How does the habitual use of alcoholics lessen one's chances of recovery when attacked by pneumonia or some other severe disease?

Why is the drinker a poor risk in life insurance? Why is he likely to fail to meet an emergency?

How do we know that tobacco is a source of weakness? Why do people think they can work better with it? Why is its use prohibited in all important athletic contests?

What makes its use so injurious? How does it affect the heart's structure? the action of the heart?

How does its effect upon the heart interfere with growth? with the nervous system? with mental power? with the circulation? digestion? the muscular system? the development of the bones?

When the effects of these narcotics upon the heart, and through this organ upon the general health, have been fully discussed, take up in class their further influence upon one's business prospects, no matter in what direction these lie.

The world's demand is always for efficiency, and narcotics, even when used in so-called moderation, are unalterably opposed to one's best. No genius possesses powers of mind and body to throw away, and certainly people of moderate ability can not afford to risk their chance of success on degrading habits.

Make this so plain that every pupil grasps its meaning before body and soul are enslaved by narcotics, and the great majority will never become their victims.

AUTHORITATIVE QUOTATIONS

ALCOHOL CAUSES DISEASE OF THE HEART

There can be no doubt that alcohol, when taken into the system, may cause disorder of the heart's function and even disease of its tissue. A heart thus disordered in its action can not endure so much strain as a sound heart. It will give out more easily with exertion.

It is much less able to withstand the extra strain imposed upon it by the existence of some severe disease, as pneumonia, than the average heart.—HENRY F. HEWES, M.D., Harvard University.

ALCOHOL A CAUSE OF FIBROID DEGENERATION OF THE HEART

The use of alcoholic drinks often changes the structure of the walls of the heart, producing what is known as fibroid degeneration. In such cases masses of new fibrous tissue begin to be developed in and around the muscular fibers, and gradually to crowd them out. The walls of the heart become weakened and the heart's action is enfeebled. In the end, sudden death is likely to occur.—W. E. BALDWIN, M.D.

ALCOHOL CAUSES FATTY DEGENERATION OF THE HEART

Another and more frequent affection produced by alcohol is that known as fatty degeneration of the heart. Particles of fat are deposited in the heart substance, breaking up and crowding out the muscular fibers, and gradually changing its structure until it partially loses the power of contraction. If the use of alcohol is continued, the deposit of fatty particles may be increased until the heart loses its power and life ceases. Not only are the walls of the heart injuriously affected by the use of alcoholic drinks, but the valves also often become diseased.—W. E. BALDWIN, M.D.

TOBACCO A SOURCE OF WEAKNESS INSTEAD OF STRENGTH

It is the plea of the majority of tobacco users that they can work better with tobacco than without it, and that it gives them muscular strength. The first statement is no doubt true, for tobacco holds them in a sort of bondage

from which they can not break. The second statement is not true. No real endurance comes from tobacco. No tobacco user can obtain membership in the rowing crews of Oxford and Cambridge, where the best physical strength is desired.—W. H. Riley, M.D.

NICOTINE PARALYZES THE HEART

Nicotine is one of the most powerful nerve poisons known, and destroys by attacking all the functions essential to life, beginning by paralyzing the heart. There is no substance known that can counteract its effect. We have the highest medical authority for stating that no one who smokes tobacco before the bodily powers are developed ever makes a strong vigorous man. It prevents development mentally, morally, and physically.

—Chas. H. Shepard, M.D.

CIGARETTES PREVENT PROPER NUTRITION OF THE HEART

Cigarettes not only poison the blood temporarily, but permanently distribute the normal ratios of its component parts. The heart is the hardest worked organ in the body. If it has deteriorated blood to live on, it degenerates and weakens just as the other muscles of the body.—J. S. Leonhardt, M.D., Specialist in Heart and Nervous Diseases.

Mid-winter in our new possessions.

CIGARETTES STOP DEVELOPMENT

The cigarette hinders the physical development of the boy so that he is dwarfed in body and strength and can not hope to excel.

—Amos Hiatt, Supt. Public Schools, East Side, Des Moines.

CIGARETTES WEAKEN THE HEART'S ACTION

Cigarette-smoking boys are smaller in stature than others. The heart becomes very weak and irregular in its beat and incapable of standing up to its work if any extra call be made upon its resources.—A. L. Monroe, M.D.

NICOTINE DEPRESSES AND POISONS THE HEART

Nicotine is one of the most powerful nerve poisons known. Its depressing action upon the heart is the noticeable and noteworthy symptom of nicotine poisoning. There is no substance known that can counteract its effects. The frequent existence of what is known as "tobacco heart" in men whose health is in no other respect disturbed is due to this effect.

—["Science."

CIGARETTES A CAUSE OF "TOBACCO HEART"

The cigarette habit is increasing among boys and also among girls. It impairs nutrition, develops the "tobacco heart" and impairs the vigor of the circulation.—James Collins, M.D., Philadelphia.

CIGARETTES A CAUSE OF NERVOUSNESS

Cigarette smoking causes nervousness and disease of the stomach and heart.

— C. W. Benson, M.D., Baltimore.

CIGARETTES CAUSE HEART PALPITATION.

Irritable, palpitating heart, severe nervous irritability, with loss of mental capability, are some of the noticeable results of the cigarette habit. —Winslow Anderson, M. D., University of California.

The schoolrooms in which children spend a large part of the time during the most critical years of their lives should conform to the most approved sanitary knowledge of the age. Ample provision should be made for complete drainage, the best methods of heating and lighting, and thorough ventilation should be employed. To insure a sufficient amount of oxygen all schoolrooms should be aired both morning and evening and at intervals during the daily sessions. This can be best accomplished by having frequent recesses, during which the doors and windows are thrown open and the rooms thoroughly ventilated. — E. Stuver, M.D., Ph.D.

Peopled and worn is the valley, lonely and chill the height;
But the peak that is nearer the stormcloud is nearer the stars of light.

—Frances R. Havergal.

NINETEENTH CENTURY NOTES

IV. THE FIRST HALF CENTURY ENDED

"Slow are the steps of Freedom, but her feet
Turn never backward."

IN 1840, half a century and more had passed since France had lighted her beacon fires of liberty which, to conservative rulers and nations, had seemed ominous signals of change and ruin, but to the people, downtrodden and oppressed, signals of hope and deliverance. The half century had seen successive periods of progress and reaction, of hope and discouragement to the lovers of liberty, times when all the blessings humanity longed for had seemed almost within reach only to be succeeded by years when the cause appeared nearly lost.

The Talleyrands, the Metternichs, and the Louis Philippes of Europe had imagined that by resisting all change in government or society they could build up nations strong enough to stay the onward march of progress, but they failed to see under the restless commotions and revolutions of the people the workings of the resistless force of the eternal principles of liberty before which eventually their doctrines and work were to be swept away.

Much had been gained in that half century struggle for constitutional government and individual rights, much was still to be won, and the story of the fifth decade of the nineteenth century is the story of how the people made another effort to secure their rights.

"As, flake by flake, the beetling avalanches
Build up their imminent crags of noiseless snow,
Till some chance thrill the loosened ruin launches
And the blind havoc leaps unwarned below,
So grew and gathered through the silent years
The madness of a People, wrong by wrong."

As in the revolutions of 1789 and 1830, so in 1848 France threw the spark which caused the "whole powder magazine of European enthusiasm to explode simultaneously," but during the preceding years minor explosions had occurred which might have warned the conservative rulers of the dangerous path they were treading. Austria's influence unalterably set against reform was still all powerful among the German states, and held Italy in stern control. Discontent became rife among her own people, especially those of Hungary, as they realized that they were not sharing in the even slight gains in privileges which were gradually coming to neighboring states. Poland once more tried to shake off the rule of Russia. Ireland, under the fiery leadership of Daniel O'Connell, tried to break the bond holding but not uniting her to Great Britain, while her famine and distress compelled the repeal of England's famous corn laws. Canada's demands for greater constitutional liberty led to the union of the provinces in the "Dominion," with privileges granted by the home government which have given her practical independence and secured her abiding loyalty to the mother country.

As for France, her people were very unhappy under the commonplace government of Louis Phillipe. The hopes of wider popular liberties, so high at the accession of "the citizen-king," had not been realized. He had come into power chiefly by the aid of the capitalist class. The rapidly changing industrial and economic conditions owing to the inventions and improved means of transportation were causing great distress among the laboring people. Apparently resolved to have peace at any price, the government put down with a strong hand any expressions of discontent, but at the same time had no measures of reform to offer to relieve the rapidly increasing distress. It managed the elections of members to the National Assembly and so controlled their votes that the will of the people could not be expressed, much less carried out. "Never will I consent to a reform," said Louis Phillipe. "Consider that definitely settled."

Nor was the government more fortunate in its foreign relations. By taking the part of Mehemet Ali, the Egyptian, in his demands upon Turkey, France managed to array against herself the combined opposition of all the other European powers, and had the humiliation of being obliged to withdraw her support of Mehemet Ali and of seeing her diplomacy utterly fail. The double dealing of the King in endeavoring to extend the influence of his family by the Spanish marriages cooled the friendship of England. Ashamed of their diplomacy, unable to secure reform at home, with misery and poverty constantly on the increase, the people of France were gradually working up to the explosive point which was reached on the anniversary of Washington's birthday, 1848, when the banquets planned by the advocates of reform and popular liberty were forbidden by the government. Then the people rose in anger, there was fighting in the streets, the ministers resigned, the soldiers fired on the mob which, vowing vengeance, marched to the palace, and the king, realizing all too late that reform was necessary, abdicated, fleeing from Paris in a common hackney coach and escaping to England under the unassuming name of Mr. William Smith.

Two days later the republic was declared. Its attempts to solve the pressing domestic problems by providing labor for every one in need speedily proved a failure. The constitution, adopted in spite of protests from the more far-seeing leaders, opened the way for direct conflict between president and assembly, while the return of the adroit Louis Napoleon from London where he had been serving as special policeman in the Chartist excitement, and his

election as president of France in December, 1848, were but the beginning of the end of the republic and of the return of the empire.

Other states and people welcomed the proclamations of the French Republic as a sign that the time had come when they too might successfully resist the policy of Metternich. "Revolution is like an epidemic," says Justin McCarthy. "It finds out the weak places in systems." Austria, the stronghold of continental conservatism, was soon ablaze with rebellion; the Italian states and cities taking advantage of her temporary weakness followed suit; Hungary demanded reform under the threat of revolution and got it.

"From the English Channel to the borders of Turkey," says Mr. Brooks, "the leaders of the people hurrahed for constitutional liberty. Milan, Messina, Munich, Prague, Berlin, Vienna, Naples and the smaller German cities joined the ranks of reform; London itself was threatened by Chartist mobs; kings, princes, viceroys, ministers went scurrying for shelter; even the Pope of Rome fled from the Vatican; the Emperor of Austria abdicated, and the King of Prussia declared his willingness to grant reforms and unite all Germany into a nation."

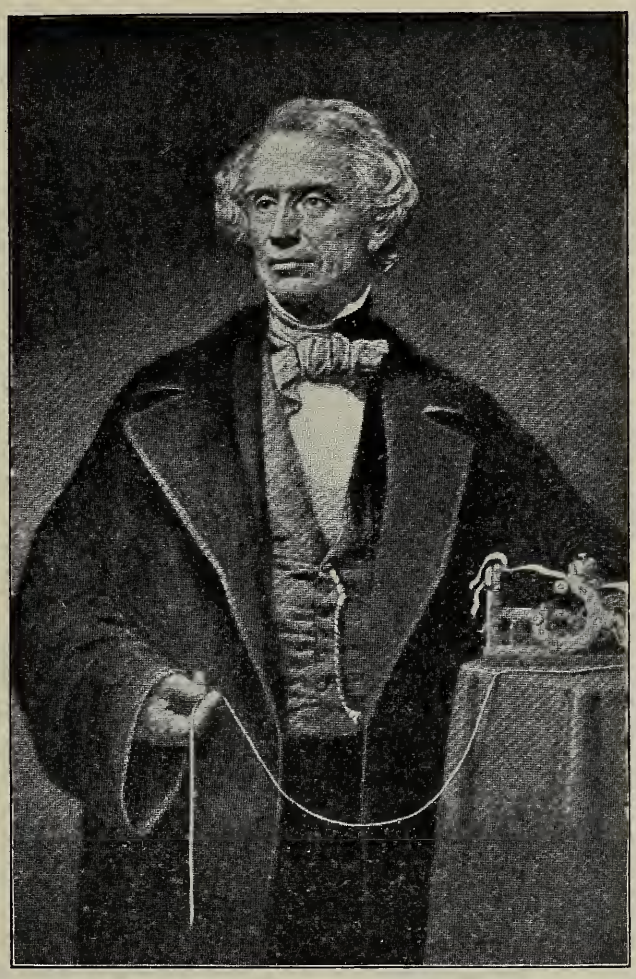
Another writer says:

"To the people of Europe the supremacy of absolutism seemed to be overthrown and the era of constitutional government begun."

But human nature was not yet perfect nor above petty jealousies and inability to sink personal preferences in the greater cause of the common good. France's success was wrecked on the rock of mutual distrust between moderate and radical factions which made very attractive to those desiring peace the grandiloquent boast of Louis Napoleon that his name was "the symbol of order, nationality and glory," and encouraged the republic to entrust itself to his guidance, a trust soon to be betrayed.

Jealousies and disputes among the Hungarian leaders gave Austria time to gather up her energies and reconquer Hungary, and then, with hands freed from complications at home, to turn her attention to the rebellious Italian states where lack of earnest and sincere co-operation made them once more an easy victim to Austria's power. Yet through their very defeat the people of Europe were slowly learning the necessity for united action, that the cause of individuals must be sunk in that of the nation, while the attention of rulers was once again forcibly called to the fact that the rights of the people could not be ignored.

But the world's energies were not at all spent in trying to secure economic and political reforms in the revolution of 1848. In America, the slavery question was becoming acute, already numbering among its martyrs the brave Lovejoy who fell for the cause of free speech in behalf of the slave. For the sake of slavery the nation had been swept into an inglorious war with Mexico, ending in the defeat of Mexico and the addition of thousands of square miles of territory to American possessions. The gold of California discovered in 1848 was a magnet drawing thousands to the Pacific coast, thus extending American influence from shore to shore of the great continent. England, too, had been busy with measures of expansion, and by conquest had won and annexed northern India. Livingston, the brave missionary-explorer, was penetrating the heart of Africa and opening the way for the entrance of civilization into the "dark continent," while England, France and the United States had gained an entrance into China.



Samuel F. B. Morse, 1791—1872.

"What hath God wrought."

In the world of letters Carlyle and Emerson, Victor Hugo, Macaulay, Bancroft, Agassiz, Tennyson, Whittier, Lowell and Holmes were exerting a powerful influence in shaping thought and determining action. The spirit of invention awakened just before the beginning of the century had never again fallen asleep, and in this decade it gave to the world photography through Daguerre, the sewing-machine through Elias Howe, to suffering humanity the blessings of ether and chloroform through Morton and Waldie, through Rowland Hill the postage

stamp which became a tiny but mighty aid to the advance of intercommunication, and through Samuel F. B. Morse the first working telegraph which in time was to make neighbors of the remotest corners of the earth.

Thus letters, science, and invention were working with and contributing to political and economic forces, and out of the union was coming a grander conception of the relations of man to man, of nations to individuals, and of the high destinies of the human race.

SANCTIFIED WEALTH

Several years ago, when Mr. and Mrs. Stanford were traveling over the United States to secure ideas in starting The Leland Stanford Junior University they were made the butt for many jests, both good-humored and ill-humored. The wealth of the bluff old pioneer has created, largely under the later management and generous help of Mrs. Stanford, a beautiful university that is the pride of California. Sara K. Bolton, the well-known biographer, writes regarding the gifts of Mrs. Leland Stanford and her university work in the January "Delineator."

O wonderful world of white!
When trees are hung with lace,
And the rough winds chide,
And snowflakes hide
Each bleak unsheltered place;
When birds and brooks are dumb—
What then?
O, round we go to the green again.

—G. Cooper.

The family were at their devotions the other morning in the home of a West End clergyman. Master Six-year-old thought his papa's prayer was rather long when breakfast was waiting, and he undertook to beat a quiet retreat to the kitchen. Suddenly there was a crash, and a table, with its contents, fell to the floor, with the young deserter from the family altar beneath it. Prayers were interrupted temporarily, and when they were resumed the father prayed for the naughty boy. A short time later the lad's mamma found him in a closet upstairs. He was sobbing bitterly.

"Oh, mamma!" he exclaimed indignantly, "papa tells God of all the bad things I do, but never tells Him a word about the good that's in me."—[Cleveland Plain Dealer.

People breathing foul air, drinking polluted water, eating unsound food, and living in unhealthful homes from day to day and month to month, all unknowingly, are people with dulled perceptions; and what blunts their sense of smell and sense of taste is not far to seek.—[Medical Pioneer.

BOOK NOTICE

Physical Culture, by B. F. Johnson Publishing Co., Richmond, Va. Cloth, 25 cents.

An admirable little volume for teachers and parents. The rules of hygiene which it presents are clear and easily followed. The directions for exercising each part of the body commend themselves at sight to those who wish to use some form of gymnastic and calisthenic movements in the home or schoolroom, but are unable to do so through lack of special training. The work is simple, practical, and fully outlined. An attractive feature, as well as a very helpful one, is the number of excellent illustrations throughout the book, showing the correct position for the different exercises. The book is well adapted to supplement work in physiology, and we cordially commend it for use in the school and home.

A five-year-old boy went with his mother to make a call. The lady of the house, who was fond of children, told him she meant to ask his mother to let her have him. "Don't you think your mother would let me buy you?" she asked.

"No, ma'am," answered the little fellow, "you haven't money enough."

"How much would it take?" she continued.

"Three hundred dollars," said the boy, promptly, as if that would settle the matter once for all.

"Oh, well, then," said the woman, "I think I can manage it. If I can, will you come and stay with me?"

"No, ma'am," he said, with decision. "Mamma wouldn't sell me, anyhow. There are five of us, and mamma wouldn't like to break the set."—[Buffalo Enquirer.

The little wildflowers are tired of play,
And weary of field and sun;
The birds and the bees have gone away,
The song of the rain is done;
So now they nod on their beds of sod,
While winter winds o'er them sing,
And sleep so deep, knowing well that God
Will awaken them in the spring.

—James Courtney Challiss.

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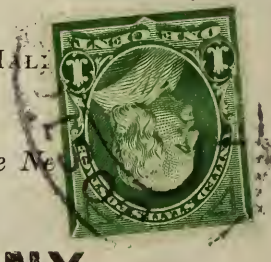

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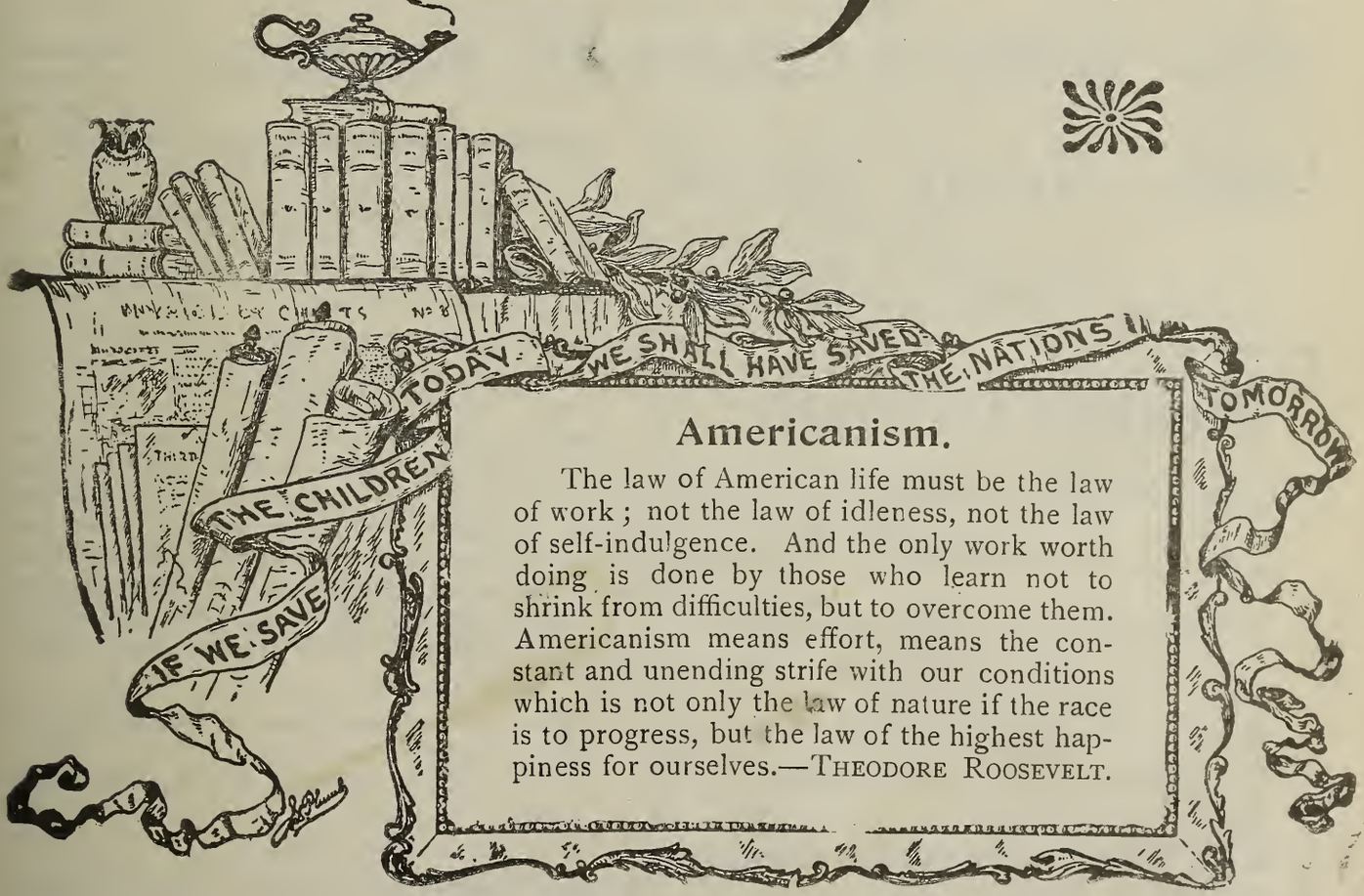

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BE STRONG

"Be strong!
We are not here to play, to dream, to drift,
We have hard work to do, and loads to lift.
Shun not the struggle,—face it; 'tis God's gift.

"Be strong!
Say not the days are evil. Who's to blame?
And fold the hands and acquiesce,—Oh, shame!
Stand up, speak out, and bravely, in God's name.

"Be strong!
It matters not how deep intrenched the wrong,
How hard the battle goes, the day how long;
Faint not,—fight on! To-morrow comes the song."

AN INVINCIBLE FORCE IN HUMAN AFFAIRS

RETROSPECT and forecast are the moods induced by the close of a century and the entering upon another hundred years of world history.

The first century dates from the reign and advent of two wholly different masters. When the year one opened, the inhabitants of the earth were bending in slavish fear and misery at the feet of the first of these masters, the emperor of Rome the mistress of the world. His mandate was "Obey me or die." In the midst of that moral darkness and slavish submission to cruel despotism, the second Master came and announced the new truth that all men are equal in God's sight, and that God is the Father of all.

"The slave in the intervals of his torture, the captive in his dungeon, the widow and orphan," souls longing for escape to that purity to which the human heart can never become wholly dead, all these heard the glad news, and hope was born. Freedom and liberty became words to conjure with, and the rallying cry of the oppressed. As the centuries have rolled by, the idea that liberty is a God-given right has so changed the world's history that its story seems to be a progressive resistance to the tyrannies that one after another have held humanity in bondage, and an emerging from them.

As we enter upon the twentieth century, throughout almost all Christendom the coarse forms of monarchial despotism have given place to representative governments; human chattel slavery is no more in civilized lands; the loneliness of isolation is broken by modern intercommunication which brings to the home of the laborer of to-day luxuries the monarch could not command a hundred years ago; and the despotism of ignorance is being dispelled by education.

There have been marvelous gains for humanity in these nineteen hundred years. The track of the centuries is strewn with the broken shackles of human bondage struck off as the generations have moved, each farther on and higher up than its predecessor. Nevertheless, we are obliged to admit that the worst of all forms of oppressive slavery still remains in the very heart of our highest civilization—the slavery of alcohol.

It is the worst of all, because it is a voluntary enslavement of body and soul, for this world and for that which is to come. Slaves of the Cæsars hated their despotic masters and plotted for freedom; the slave of alcohol loves his enslaver and plots and plans to gratify the appetite which continues his bondage. His will is so completely enchained that the voice of reason, conscience, ambition, and affection are alike unheard and unheeded. It is an old slavery. Dating from the beginning, it has survived all the battle cries for freedom since the first pages of human history were written.

The twentieth century opens in our country with the tax on alcoholic liquors constituting a large part of the revenue of the United States. The more there is manufactured and sold the more revenue there is in the national treasury. Alas, for the blinding power of money! The fact that an increase in the sales of alcohol means an increase of enslaved citizens has not yet moved the conscience of our nation, or caused the alarm for the future that the case demands.

Under this government of the people any hope for the overthrow of this evil that might come from legislation waits on public opinion. The press—the daily and weekly papers and the magazines—is a mighty modern agency for making public opinion. Here again the power of money helps perpetuate this bondage. Profitable liquor advertisements close the columns of the press to protests against this alcoholic slavery, for fear the liquor advertiser may be offended by utterances that might hurt the sale of liquor.

Public officials, both legislative and executive, down to the last constable hesitate to speak or act upon this burning question either before or after election, unless they are sure that a strong majority of their constituents are opposed to

this bondage. Otherwise it might cost them their offices.

Thus appetite, money, and office constitute a three-fold trinity of silence favoring this evil. Strange paradox in a land devoted to free speech that alcohol should thus have the right of way! Is there, then, no hope? Must this slavery, as in the past, go on through the annals of all coming time? In the centuries gone there have been signs that presaged deliverance from a special tyranny; are there no such beacons of light now? Yes, there are. The fourteenth century dawned upon a world sunk in intellectual torpor, but historians say that it must have been evident to far-seeing observers of that time that some great change was in progress during the whole of that century; not so much from the doings of knights, nobles and kings, as from the uprising of the human mind that had lain so dormant since the fall of Rome that most of the intervening centuries had been styled the Dark Ages. Four great men appeared almost simultaneously in the fourteenth century, but in different countries,—Dante, Petrarch, and Boccaccio in Italy, and Chaucer in England. These men awakened in others that aroused intellectuality which they represented, and which led to the invention of printing, the spread of knowledge and the discovery of America, all in the next, the fifteenth century. History shows that something like this experience of the fourteenth century is the experience of all time. When the world needs a new truth men are raised up to search for it simultaneously in widely separated parts of the world, and without conference, each in his own field.

History shows that one of the first symptoms of a new era is an awakened sense of the evil and of the possibility of something better. The people of France in the sixteenth century were incapable of the revolution of 1789. Nothing could move them, until later they came to realize that abject poverty and slavish misery are not the inevitable fate of human beings. Stolid acceptance of an evil, giving place to a groping, at least, after something better, is always a harbinger of coming emancipation. An awakening to the horrors of alcoholic slavery and struggle against it are more or less manifest throughout Christendom to-day. This awakening first made its appearance in the United States and England early in the century just gone. A stolid feeling of hopeless despair has in the past found voice in the worldwide lamentation: "The ravages of drunkenness are awful! But men will drink to excess. They always have and always will and you can't help it. There is no use in trying." This pessimestic jeremiad has given place to the inquiry as widespread as itself, "Is it the weakness of the drinker or the nature of the drink that leads to drunkenness?"

Nothing can answer this question but a study of the nature and effects of alcohol upon the human system. Thus the spirit of scientific inquiry has been aroused.

The writer remembers the intense interest awakened by the description given, in a quiet conversation on the shores of Lake George, by the late venerable Robert Rae of London, of his personal efforts in 1873 for another phase of temperance; efforts which resulted not in what he asked for but in far more, the original scientific investigations as to the nature and effects of alcoholic drinks by Sir Benjamin Ward Richardson. These investigations proved that total abstinence is great Nature's law, and their report, made just as the last quarter of the departed century dawned upon the world, was epoch-making.

No student of the great events which mark the centuries can fail to see that there is a force in the affairs of men, entirely above and beyond their ken, a force which they may lack the foresight to recognize at the time, but which, nevertheless, is making for righteousness.

Note here one of the movements of that force. We call it Providence. Its work was independent of the scientific movement in England, but simultaneous with it, both resulting in search for the same truths.

During the first of the last quarter of the century just gone, the governments of continental Europe became anxious over their loss in taxes, and the failure in men to reach the required physical standard for soldiers. Inquiries were sent out to learn the cause. This resulted in the calling of a biennial continental "Congress for the Prevention of the Abuse of Alcohol," composed of representatives from university and government circles. This Congress has held seven sessions. The next one is to occur two months hence, in April, 1901, in Vienna, Austria. The work of this Congress quickly became that of scientific inquiry as to the nature and effects of alcohol upon the physical, mental and moral nature of the human being. Investigations upon these topics which have been carried on in the famous physiological laboratories of Europe are reported to this biennial Congress, and by them to the world.

The reports of the scientific investigations of Sir Benjamin Ward Richardson of London reached this country in 1875, just as the last quarter of the nineteenth century had dawned upon disappointed hopes, because efforts for the reform of the drunkard had proved so futile, and many were turning to political methods. While men of notable standing in science, like Dr. N. S. Davis, Dr. Willard Parker and others, had taken a strong stand against alcohol, there had been in this country but little original physiological work to show its nature and effects, in comparison with that carried on in Europe.

Nevertheless, the truth was out and vouched

for against alcohol, and the people were being destroyed for lack of knowledge. Then came years of pleading by the writer with tongue and pen throughout this and other lands, from legislature to Congress and to legislature again for the scientific education of the rising generation in the great facts so graphically set forth by Richardson and others, and of work with authors and publishers as the discoveries of the latest scientific investigation were put into graded text-books for school use.

The new century dawns upon the United States with every public school pupil in this country, except those in Georgia and Utah, under laws that require them to be taught, with other laws of hygiene, those which relate to the effects of alcoholic drinks and other narcotics, and with a great school literature that even Professor Atwater, the brewers and their emissaries can not prove inaccurate.

"Dream not helm and harness the sign of valor true;
Peace hath higher tests of manhood than battle ever knew."

But are these text-books not opposed? O, yes, by people who have yet to be informed as to the truths they teach. The wife of a young engineer went with her husband into the mountain sections of a sparsely populated country. Pity led this young lady to gather the neglected children she saw there for stories that led to their learning to read; but when she showed those children maps and told them of beautiful cities and places beyond the mountains where they lived the older people mobbed this lady. They said the mountains had always been good enough for them and all their folks, and they reckoned they were good enough for their children. They would not have such notions put into their heads. Teach in the schools or out, in cities or mountains, a truth that is in advance of the intelligence of the people, that cuts across appetite, interest or prejudice, and opposition will follow.

But do not be in the least dismayed or stop your lessons. It is God's truth and not yours, and it is for the healing of the nation. As we teach let us remember Wendell Phillips' words:

"Plant only the tiniest seed of concession and you know not how many and how tall branches of mischief will grow from it."

If we are only loyal to the utmost truth, God will use it in ways we can not imagine for freedom from the alcohol bondage. Sometimes the planting season seems long and difficult to some of us, but the harvest is sure and

"Behind the dim unknown
Standeth God within the shadow keeping watch
above his own"

It is now nineteen years since the first temperance education law was passed in this country. It is ten years since the indorsed books have been in anything like universal use in the schools, with their plain lessons of warning truth adapted to all grades of pupils. During that time there have been some schoolmen who did not and now do not know which is right, the alcohol or abstinent side. Some have been afraid of losing their timid heads, and with others ardor for the study has been cooled for reasons of their own, among which the most creditable is the fact that the pedagogical side of this study may not have been thrashed out before them until its defense became familiar. Added to these hindrances, during the last two years, is still another form of opposition which has appeared in the subtle and active Atwater campaign of so-called science in favor of moderate drinking, and against the indorsed instruction. Nevertheless, the results of the ten years of temperance teaching, as shown in our industrial records and the comparative consumption of alcohol set forth on page 89 of this Journal, are evidence of the faithful work for scientific temperance done by the great majority of school authorities and teachers in our beloved land.

In behalf of that land and its mission in the world we extend to these loyal souls in the educational ranks the gratitude of the future. Time will show that theirs has been a greater work for freedom than even that of the men who wear the Grand Army badge.

The hopeless night of alcoholic slavery has been long. Its darkness has been popular ignorance of the subtle power of a little to create the destructive appetite for more, but the dawn is appearing. The schools have broken the silence against alcohol in this country, and other nations are having preliminary discussion to the same end.

What history with its perspective calls the fullness of time was the conjunction of events that otherwise might have passed unheeded. Without the investigations of Sir Benjamin Ward Richardson, first begun in 1863, but not publicly reported until 1875, we should not have had sufficient scientific data, not enough truth that had been authoritatively proved to have warranted the temperance education movement in the public schools of this country. In the preparation of the first text-books every statement from a lesser authority was always rejected unless confirmed by Richardson. If the report of Dr. Richardson's investigations had not come just when the public mind in this country was in a receptive mood for the suggestion of an educational method for the prevention of the drink ruin, if it had not come just when conditions were convincing politicians that something must be done for the temperance cause, and if this proposed education had not promised not to be immediately revolutionary, the movement could not have been the success it has been. Similarly, if the investigations in scientific circles on the alcohol question on the continent of Europe had not been a feature of the last quarter of the nineteenth century, confirming Richardson's findings, we should have lacked much evidence which now contradicts the Atwater fallacies.

But all these co-operating events would have failed to secure scientific temperance instruction for this country if there had not been on this side of the water a spirit of watchfulness, waiting for the truth as for the morning to gather it up, defend it, and put it into shape for all classes of minds.

These facts point to a co-ordinating force, above and beyond men, guiding humanity to a climateric hour of emancipation from the slavery of alcohol.

Near the poles, when the sun rises above the horizon of the long winter night, nature seems always in haste to perfect her vegetation, and the quick fruitage of the long buried seed is startling. Something like this transpired in the United States Senate on the eighth and ninth of the first January of this new century. For two whole days grave and learned senators discussed alcoholic slavery in the pending question, "Shall beer and alcoholic liquors be sold on grounds and transports occupied by the army of the United States?" The record of that debate reads like the speeches made in the same chamber in the first half of the last century by Clay, Webster, Hayne, Calhoun, and later by Sumner on "The Irrepressible Conflict," over that other bondage, human chattel slavery.

In the recent debate, the speeches set forth in pungent oratory and merciless logic the "shock to the moral sentiment of this country that the government of the United States should put back of liquor-selling its great force and character."

But the masterly presentation of testimony founded on the bedrock of the latest scientific truth as to the nature and effect of alcohol, especially in beer, quoted from investigations from the old world and the new, came in the speech of Senator J. H. Gallinger, M.D., of New Hampshire. The fact that it was followed by a vote of thirty-four for the prohibition of beer and all intoxicating liquors in our army posts, and on our army transports, to fifteen against, after the enemy had exhausted every effort, shows not only the power of the winning arguments, but that the truth thus represented has taken root in that public opinion before whose mandate the Senate must bow under a government of the people. Those votes were the flowering of total abstinent seeds of truth planted by many hands, but by none more than by the teachers who have been faithful in impressing the very lessons which Senator Gallinger used with such good effect in the Senate, from the indorsed text-books which the children in our public schools are studying.

On these anniversary days, when we recall the birth and lives of Washington and Lincoln, one the Father, and the other the Saviour of his country and the emancipator of a race of slaves, we urge upon schoolboards, school officers and teachers that loftiest of all patriotism demanded by the hour, the fulfilment of the utmost duty for that instruction of the young which will complete the emancipation of their generation from alcoholic slavery.

MARY H. HUNT.

One deed may mar a life,
And one can make it;
Hold firm thy will for strife,
Lest a quick blow break it!
Even now from far on viewless wing
Hither speeds the nameless thing
Shall put thy spirit to the test.
Haply or e'er sinking sun
Shall drop behind the purple West
All shall be lost—or won!

—RICHARD WATSON GILDER.

Primary Lesson

POLITENESS

A man by nothing is so well bewrayed
As by his manners.—FAERIE QUEENE.

WE are assured by educational leaders whose fingers are on the pulse of the public school, that the time is not far distant when pupils will be marked upon character before scholarship.

Hitherto, in our zeal to educate we have too often trained the head at the expense of the heart, until the rudeness of American children has become proverbial. The remedy lies in our own hands. We must teach manners as well as matter, and by what we do no less than by what we say. If "the republic can not live amidst ignorance," still less can it survive a lack in moral character, and in that manliness and womanliness which are its chief exponent.

Children are born imitators, and we have only to lead aright to make sure of their following. A mother noticed that her little boy soon after entering school had lost his rough, noisy manner and was becoming very thoughtful of others.

"Does Miss Grove teach you to be polite?" she asked one day.

"No, mother, she never says a word about it."

"But what does she do?" persisted the mother.

"She just walks around and we all feel polite."

No other spirit was possible in that schoolroom because of the influence radiated from the teacher. Similarly, there is not one child in a thousand who does not respond to the atmosphere of a church, a library, a refined home or schoolroom.

If every request, every acknowledgment of a favor, the directions for an exercise, the teacher's very entrance into the room are all based upon true courtesy, the pupils will unconsciously shape their conduct in some measure by the gracious pattern set them. Without this living exemplar the most explicit instruction in manners will have little effect. With it as a perpetual background, an occasional lesson in the details of politeness will stand out clearly, and influence the child's subsequent action.

In the present article attention is called to three phases of this topic:

What is meant by politeness.
Its effect on others.
Its effect on ourselves.

(1)

WHAT POLITENESS IS

It is seldom wise to call public attention to an act of impoliteness of which a child has been guilty. A more efficacious method is to deal with the offender in private, or, if the attention of others has been already directed to the fault, to point out a better course of action indirectly, perhaps by an illustrative story.

Suppose one of the children has some special dainty for lunch, and instead of eating it quietly, or sharing with his mates, he calls attention to his good fortune and their lack. This discourtesy is rarely intentional on his part, and may need only to be understood as such to be discontinued. Pass it over at the time, and when the next story hour arrives tell the children

HOW A DOG GAVE A LESSON

Fritz was a little German boy. He had two pets, a tortoise-shell cat named Gyp, and Prince, a dear little black and tan dog.

Usually they played together very happily. Prince would carry anything his master told him to, and he was never too tired to go for a romp.

One hot day Fritz's mother gave him a buttered roll and sent him outdoors to eat his lunch under the trees with Prince and Gyp.

Usually all shared whatever one had. If Prince found anything interesting he would come bounding up to Fritz with it; and Gyp never thought of catching a mouse and eating it all by himself. One day he even laid a big fat one on Fritz's plate at dinner before anybody could stop him.

So, to-day, they naturally expected Fritz to divide his roll with them. But Fritz was cross that morning, and his pets had to suffer from his ill temper.

Prince sat up and begged his prettiest, and Gyp asked him just as sweetly as a cat can mew for a bite, but all in vain. Fritz munched sullenly away, paying no attention to either of them.

When his mother came out to join the party, she was surprised to find such a selfish, impolite little boy; but she sat down as if nothing had happened.

"I saw two dogs this morning," she said brightly, "and one was giving the other a lesson."

Fritz was interested at once. "How could a dog give a lesson?" he asked. "Dogs can't talk."

"I'll tell you," said his mother.

"When I reached the park a blind man was standing there. He was led by his dog, and I never saw a more miserable, half-starved creature.

"Just then a little girl came along with her pet dog. He was a very different looking animal, sleek and fat, with a collar and bells tied with a smart little ribbon around his neck. But he was a surly little fellow for all his fine looks, and scolded and snapped at everybody they passed.

"When he saw the blind man's dog he drew back in disdain, and looked up into his mistress' face as much as to say, 'Do let's hurry away from that dreadful creature!'

"But, fortunately, she was a kind-hearted little girl, so she dropped some pennies into the poor dog's basket, and here is where the lesson comes in.

"He sat up on his hind legs and bowed as nicely as you could. Then he barked his 'thank you,' and last of all he held out his paw, first to the little girl, then to her dog.

"'There, Fido,' I heard her say, 'he is a great deal more polite than you. Aren't you ashamed?' And Fido did look as if he were sorry the street dog had beaten him in good manners."

"That was a pretty smart dog," said Fritz admiringly. "I wish Prince knew as much. How do you suppose he learned?"

"Probably his master is always polite to him," said his mother.

Fritz blushed. "I wasn't very nice to Prince this afternoon, but I'm going to be after this. I want him to know as much as a tramp dog."

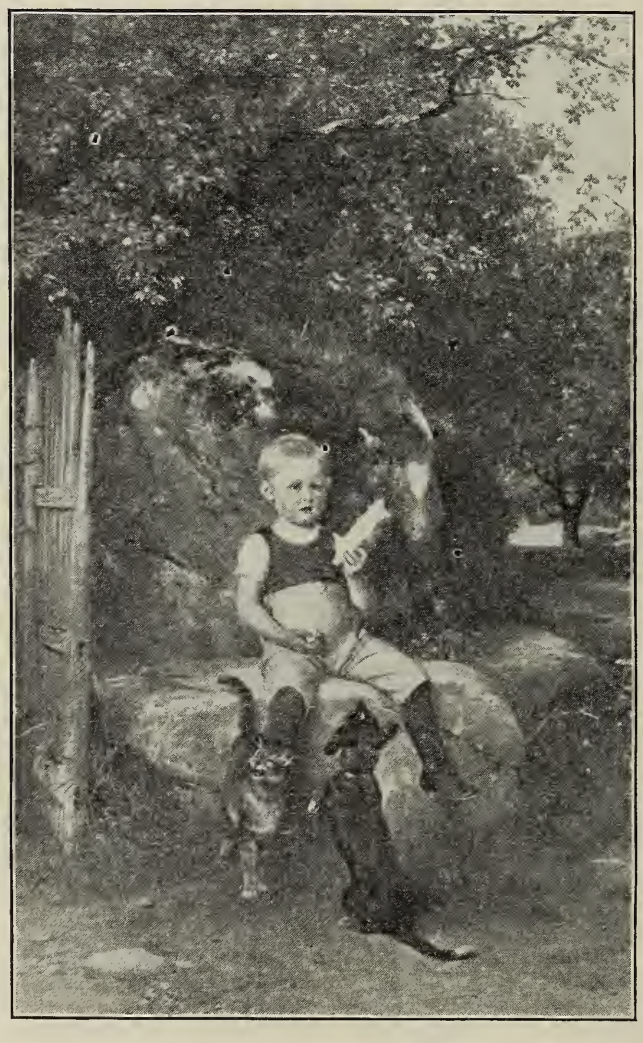
"And I want my son to be as polite as that little girl. Do you suppose he wants her to beat him?"

"No, indeed," said Fritz. "But how can I be polite. Lots of times I don't know what to do, and sometimes I forget what I do know."

"The best way is always to think of the feelings of others, and try to do what will make them happy," said his mother. "Suppose you keep this in mind, and tell me to-night how many ways of being polite you have found for yourself."

Fritz honestly tried, and when he and his mother had their good-night talk she discovered that he had been polite in nine different ways that day.

How many ways of being polite can you think of?



"Fritz was cross that morning and his pets had to suffer."

PROBLEMS IN POLITENESS

Let the children suggest acts of politeness at home and elsewhere, and encourage them to carry out their suggestions whenever possible. Write on the board, as opportunity offers, the following questions, one at a time:

How can I be polite to my parents? my brothers and sisters? my teacher? my playmates? to old people? to strangers? to ladies?

How can I be polite at home? at the table? in church? at any public meeting? in school? on the playground? on the street?

How can I be polite when any one does me a favor? when I am asked a question? when I must pass in front of some one? when I hand anything to another?

The teacher should leave the class free to think out their own answers to these questions, helping only when necessary to settle doubtful points, or to suggest additional opportunities for politeness.

The children's own answers, when correctly given, should be written opposite each question considered.

(2)

EFFECT OF POLITENESS ON OURSELVES

The teachers will early realize that it is one thing to teach rules of politeness until these are thoroughly familiar to every child, and quite another to help children practice them until they have become second nature. But this result was attained in the days of our grandparents, when politeness was taught as thoroughly as arithmetic, and now that it is again receiving, in part at least, the attention it

deserves, we may look for better manners in the child of to-day.

When the children understand, in some measure, what is meant by politeness, a great incentive to kindly acts will be found in stories showing the effect of such deeds upon the character of those who perform them.

Show how this is true by tales of the knights of olden times, emphasizing not the battles they fought but their kindness to the weak and helpless, and their thoughtfulness of others before themselves.

Tell the familiar story of Sir Walter Raleigh and his cloak. When the point is reached where the queen is stopped by the mud, let the children tell what they would have done if they had been one of her courtiers. Then describe Raleigh's impulsive act.

Ask them what kind of a young man this shows Raleigh to have been. How do we know he thought of others before himself?

Tell the children of Sir Philip Sydney's courtesy to the wounded soldier, in giving him the water brought to quench his own thirst, because he thought the poor man needed it more than he did.

"Fortunately, she was a kind-hearted little girl."

Explain what a knight was, and how he had to live and conduct himself to be worthy of the name. Help the children to see how the constant acts of politeness and chivalry which these people practised reacted on their lives and made them truly heroes.

Do we have knights nowadays? Explain that they are not often called by this name, but that there are just as noble men and women now as at any time in the past. Who knows of any such? Who would like to be a knight? How can you be one? How must you behave?

Any history of Lincoln's life will give many instances of his true politeness and kindness of heart. Tell these to the children, then let them tell you what kind of a man he must have been.

Queen Victoria's thoughtfulness of others has been told in so many anecdotes that it will be easy to draw similar illustrations from her life. Florence Nightingale's devotion to the soldiers has helped to make her the beautiful character she is. Show her picture to the class and read them Longfellow's "Santa Filomena," explaining enough of her work to make the poem clear.

Ask the children to name some of the most polite people whom they know, in their own town or elsewhere. Why do we all like to meet such persons, and why is it that they make every one about them happy?

(3)

EFFECT OF POLITENESS ON OTHERS

Explain why, other things being equal, the polite boy or girl is the one who gets on best with others and is always a favorite with his mates.

Later on, the polite person is sure to get the best position in business.

Who knows why this is true? Why do we like to have polite clerks to wait on us in stores? Why do we like always to do business with polite people.

Politeness has its effect on animals as well as on people. Let the children tell how their cat, dog, or other pets respond when they speak kindly and gently to them.

The story of Jocko will bring out this idea.

HOW POLITENESS MADE A FRIEND

Jocko traveled about all day with a street musician. He wore a scarlet coat and a bright green hat, and was the cutest little monkey in the city. At least, that is what all the children thought.

When the music began he danced in his funny little way. When it stopped he ran around among the people for the pennies they threw him, and hurried off with them to his master.

One day a large fierce dog spied Jocko and rushed at him with wide-open mouth. Jocko was too little to fight, and he had no time to run away. His master started to save him, but be-

fore he hardly started Jocko had saved himself.

When the big dog was almost upon him, Jocko stood up very straight, took off his little cap and made the most polite bow you ever saw.

The dog was so surprised he didn't know what to do. This was his first experience with monkeys and it confused him.

He stopped short, lost his fierce look, and finally began to wag his tail in a very friendly way.

After that, whenever he caught sight of Jocko he would run to meet him and they would have a little play together. Sometimes Jocko would climb on his back for a ride, and they both seemed never so happy as when together.

After telling this story to the children let them tell what politeness did for Jocko. What did it do for the cross dog?

Do we know any disagreeable person whom we are almost afraid of? How have we treated him? Did we ever try Jocko's way? Let us try it next time and see if we can not make him a friend.

TEN RULES OF POLITENESS

1. To be polite is to have a kind regard for the feelings and rights of others.

2. Be as polite to your parents, brothers, sisters and schoolmates as you are to strangers.

3. Look people fairly in the eyes when you speak to them or they speak to you.

4. Do not bluntly contradict any one.

5. It is not discourteous to refuse to do wrong.

6. Whispering, laughing, chewing gum or eating at lectures, in school, or at places of amusement is rude and vulgar.

7. Be doubly careful to avoid any rudeness to strangers, such as calling out to them, laughing, or making remarks about them. Do not stare at visitors.

8. In passing a pen, pencil, knife, or pointer hand the blunt end toward the one who receives it.

9. When a classmate is reciting do not raise your hand until after he has finished.

10. When you pass directly in front of any one or accidentally annoy him, say "Excuse me," and never fail to say "Thank you" for the smallest favor.—[School Board of Santa Barbara, Cal.

Great occasions do not make heroes or cowards; they simply unveil them to the eyes of men. Silently and imperceptibly, as we wake or sleep, we wax and grow strong, we grow and wax weak, and at last some crisis shows us what we have become.—Canon Westcott.

ABRAHAM LINCOLN

The color of the ground was in him, the red earth,
The tang and odor of the primal things,—
The rectitude and patience of the rocks;
The gladness of the wind that shakes the corn;
The courage of the bird that dares the sea;
The justice of the rain that loves all leaves;
The pity of the snow that hides all scars;
The loving kindness of the wayside well;
The tolerance and equity of light
That gives as freely to the shrinking weed
As to the great oak, flaring to the wind—
To the grave's low hill as to the Matterhorn
That shoulders out the sky.

And so he came,
From prairie cabin up to Capitol;
One fair ideal led our chieftain on.
Forevermore he burned to do his deed
With the fine stroke and gesture of a king.
He built the rail pile as he built the state,
Pouring his splendid strength through every blow,
The conscience of him testing every stroke,
To make his deed the measure of a man.

So came the captain with a mighty heart;
And when the step of earthquake shook the house,
Wrenching the rafters from their ancient hold,
He held the ridgepole up and spiked again
The rafters of the home. He held his place—
Held the long purpose like a growing tree—
Held on through blame and faltered not at praise.
And when he fell in whirlwind, he went down
As when a kingly cedar, green with boughs,
Goes down with a great shout upon the hills.

—Edwin Markham.

"As no one can live to himself alone, as he needs the service of his fellows—so he must hold himself bound to render service. These lessons are taught by the mutual courtesies of the schoolroom."

ON THE THRESHOLD

Joy to the laughing troop
That from the threshold starts,
Led on by courage and immortal hope,
And with the morning in their hearts.
They to the disappointed earth shall give
The lives we meant to live,
Beautiful, free and strong;
The light we almost had
Shall make them glad;
The words we waited long
Shall run in music from their voice and song.
Unto our world hope's daily oracles
From their lips shall be brought;
And in our lives love's hourly miracles
By them be wrought.
Their merry task shall be
To make the house all fine and sweet,
Its new inhabitants to greet
The wondrous dawning century.

—Edward R. Sill.

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"Ah! when shall all men's good
Be each man's rule, and universal Peace
Lie like a shaft of light across the land,
And like a lane of beams athwart the sea?"

THE NEED OF VIGILANCE

IT is time for an earnest appeal to the friends of temperance to be vigilant. The liquor interest claims that its business is on the decline, and some of the brewers are said to be losing money. The complaint is made that the young men do not drink so much as those of former generations, and this is attributed largely to the instruction respecting alcohol in our public schools. There are evidences that a persistent and determined effort will be made to have this instruction changed or entirely omitted. With free access to the young, the alcohol business is thought to be able to take care of itself. One aim is to influence teachers against the instruction; then politicians can easily be manipulated.

Evidently, the temperance sentiment has grown and is making itself felt. It is receiving a powerful ally from an unexpected quarter of continental Europe. A remarkable literature in favor of total abstinence is being developed under the leadership of German scientists and physicians. Startled by the havoc made by alcohol, they have patiently and thoroughly pursued the scientific method in investigating the causes of crime, insanity, suicide, poverty, degradation, ruined homes, individual and social misery, and national danger. The result is that they oppose the prevalent drinking customs, regard moderate drinking as a danger to the drinker, and are effecting a revolution in the use of alcohol in medical practice.

After a thorough investigation, Dr. Max Kassowitz, professor in the University of Vienna, reaches this conclusion:

"For the animal and human organism alcohol is not both a food and a poison, but only a poison, which, like all other poisons, is an excitant when taken in small doses, while in larger ones it produces paralysis and death."

—The Homiletic Review.

ONE FACTOR IN OUR TRADE SUPREMACY

AMERICAN trade supremacy is just now a topic of newspaper discussion in Europe. A recent number of a London paper, "The Express," published an article with the startling headline, "Wake up, England!" the purpose of which was to arouse interest in the question, Is England losing commercial position?

Another London paper, in searching for the cause of England's lack of ability to compete with other nations in trade, after citing as an illustration the fact that in one shipyard alone there was last year an injury to its output of twenty-five per cent from drinking men, said:

"If we are not able to produce better, faster and cheaper than other countries our sober rivals will come and capture our trade."

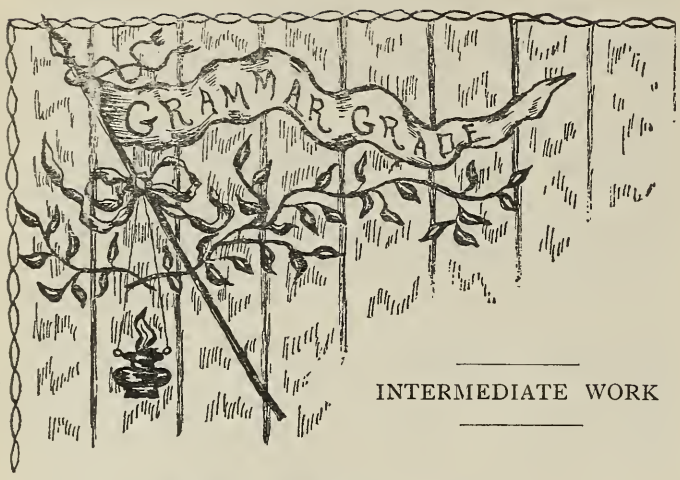
The same paper quotes the British Medical Journal as authority for the fact that Great Britain's per capita consumption of alcohol is nearly twice that of the United States.

In 1870, France, smarting under the defeat of the Franco-Prussian War, and looking around to find the cause, said, "It is the German schoolmaster. The Germans are better soldiers because they are more intelligent. We must have public schools."

Again it is the schoolmaster. Sixteen years ago, in obedience to laws enacted by Congress and state legislatures, the public schools in this country began to teach all pupils that one of the effects of alcoholic drinks is so to injure brain and muscles that the drinker can not do such good work as the abstainer. Soon after, banks, railroads, manufactories and responsible business of almost all kinds began to demand that their employees should be total abstainers.

England has no such system of compulsory temperance education in its public schools as we have, an education that is teaching the people in this country the relation of total abstinence to that success which means supremacy. This industrial supremacy is the more significant because of the fact that labor receives here a larger wage than in the old world. All the advantage due to our great natural resources, and to our extended domain under one government, and that the freest in the world, would not give us commercial supremacy or any other advantage if our industries were losing twenty-five per cent per annum of their output because of drinking workmen.

Among the causes that go to make up a nation's strength the most potent are often the quiet ones of education, seldom recognized until they reappear in the acts that make history. Total abstinence, with the education that secures it, is a part of that Godliness which is profitable not only for the life that now is but for that which is to come.



INTERMEDIATE WORK

THE AVERAGE MAN

DESPITE all the wonderful achievements of the nineteenth century, no one has yet sounded the limits of a single human soul. This is still undiscovered territory, at the threshold of which we must halt and content ourselves with providing the individual explorer with chart and compass. He must work out his own destiny.

We have taken a long step in advance when we realize and accept this fact with our pupils; when we cease trying to cast them in the same mould, excellent though this may be, and treat each as an independent personality with peculiar tastes and inclinations which must be taken into account.

The idea of self-government is inseparable from this new education, and it is the child's first lesson in citizenship. If the government of the schoolroom is a despotism, or even a limited monarchy, how is he to live wisely in a republic as soon as his school days are ended?

Educators are devoting their best energies to the preparation of a course of study which shall lead without break or repetition from the kindergarten to the university. Why should they not also devise a scheme by which the child may practice self-government through the different grades, before being thrown entirely upon his own resources as a responsible citizen?

The majority of pupils go through school with little feeling of responsibility, except to learn their appointed lessons. They expect their teachers and a few leading spirits in their own ranks to do the rest. We must banish this indifference, and make them realize that the average pupil has his own place to fill, his own conduct to govern, and that he and millions like him are soon to constitute the state and determine its strength or weakness.

Some men have made good college presidents who could not spell, but no amount of education will make one a good American citizen unless he has learned to govern himself. If civics is not included in the curriculum for intermediate grades, curtail some other lesson occasionally, or devote a few minutes at the opening or close of school to practical talks on citizenship and how it concerns boys and girls.

Instead of talking of the great men of the world, begin with a discussion of the average man, considering first,

WHAT HE HAS DONE

The great events in the history of the country are familiar to most pupils in the grammar grades. Take up each, as you have opportunity, and call attention to the part played by ordinary people in bringing it about.

To whom, for instance, belongs the credit of discovering America? Ask the class if Columbus could have succeeded in his great enterprise alone. Who helped him? Could he even have left Spain if no sailors had been found to undertake the long voyage with him?

How is the same true of other great explorers who visited our shores and penetrated into the mainland? Who were the leaders in making the first settlements in this country? Would the colonies they planted have been a success without the plain men and women who came with them? How did these help?

Have the class name some of the great military heroes they have read or studied about; then tell some of the ways in which each made himself famous. Was he able to do this work alone? The indomitable courage and wonderful sagacity of Washington and Grant turned the tide of battle in the Revolution and the Civil War, but even these great generals could not have succeeded without the help of the rank and file of their armies. How much was their success due also to the women, old men and children who worked at home and helped to keep the armies supplied with food and clothing?

The railroads and telegraphs which connect all cities of the United States have done more than most other agencies to open up the country and make the settlement of the central and western states possible. Ask the class to find who have been the leading spirits in carrying through these great enterprises. How were they helped? What would have been the result if they had not had men enough to prepare the road bed, lay the rails as well as make them in the first place, and put up the telegraph poles and wires which they needed? Why were both the genius of the inventors and managers, and the physical labor of the employees necessary to accomplish these important works?

Take up, similarly, other vast enterprises; the postal system of this country, for instance. Who is at its head? How much could the postmaster-general do in the way of handling the millions of letters and papers which pass through the mails every day, if it were not for the thousands of postmen who sort and start each piece in the right direction, and finally deliver it at our doors?

How does the merchant need his clerks, the ship captain his sailors, the mine owner his miners, the head of every business his employees, in order to carry on the work he plans? Ask the class to name the great undertakings and all the different kinds of business they can think of; then ask them to state what part the average man or woman has played in each. In how many cases could the work have been done without their help?

Consider also with your pupils some of the everyday things which have been done in your own vicinity. What has the average man had to do with tilling the soil? building the houses? making the roads? establishing the schools and churches? putting up mills and factories? performing every kind of work which has had to be done? Why have such men always been needed in the army? the navy? the shop? the store? the factory? the railroad? the postoffice? the mines? the printing-office? the school? the different professions?

"Will winter never be over, will the dark days never go?
Must the buttercup and the clover be always hid under the snow?

Ah, lend me your little ear, love; hark! 'tis a beautiful thing;
The weariest month of the year, love, is shortest and nearest the spring."

WHAT HE MUST DO

After reviewing with your pupils the different lines of work in which ordinary people have been needed in order to make our country what it is to-day, lead them to think of what must still be done by the same great class.

In the kinds of work already started, but not finished, show how absolutely necessary the work of the rank and file is to success. New railroads are constantly being built; better roads must be constructed to meet the needs of the bicycle and automobile; additional factories and buildings are to be erected and opened; the raising of poultry, and the culture of fresh fruits and vegetables is increasing; more books and papers are being printed; our army is being enlarged; and new ships are all the time being added to our navy.

Who is actually to do all these things? Show that in every case it is not the millionaire, nor the expert, nor the hero or genius, but the plain man of the people who knows how to work and is willing to do so. Explain that in these undertakings, as in everything else, the exceptional man is needed to originate plans and enterprises, to supply the necessary capital and to direct the work, but that he can do little of the actual hand labor himself, hence the average man is wanted, a thousand to his one, to carry out his ideas.

Call attention to the fact that new lines of work are constantly being opened up, and needing larger numbers of men to develop them. Ask your pupils to make a list of the great inventions which have been made during the past century, especially in its closing years.

If the census returns are available, have them find how many men are employed in even a few of these new occupations which were not even dreamed of fifty years ago. How many people are in the telephone business, for instance? the bicycle business? How many stenographers, travelling salesmen, and electrical engineers are required to-day where not one was needed when our parents were in school?

Tell your pupils there is every reason to think the century we have just begun will witness many more inventions, and new lines of work calling for more workmen, than any part of the nineteenth century, hence there is likely to be even greater need of the average man and woman to help in carrying them out.

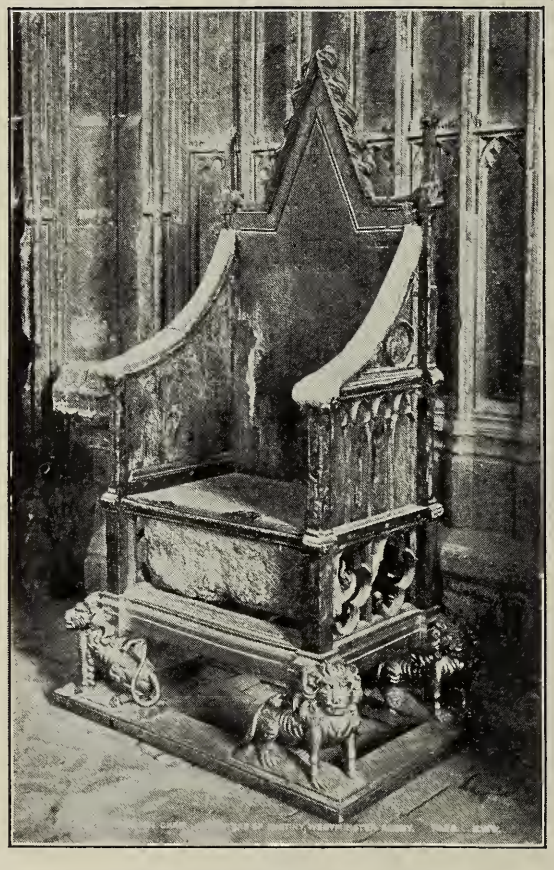
HOW HE CAN DO IT

When the class have had illustrations enough to show them that the average man is just as necessary in every age as is the extraordinary individual, they are ready for the important question of all, How is he to fit himself to do

this work? Does he need any special training?

One way to answer this question is to show how work has increased in difficulty, and how much more complex it is than was the case a hundred years ago. The man who harvested his grain then could very easily learn how to use a sickle. To-day he must understand the mechanism of a reaper. Have the class compare other ways of working at that time and now, and find how much more time in preparation, how much more skill and education are required in workmen of the present. Compare the work of a man driving a team of horses or oxen, with that of an engineer. Contrast the knowledge necessary to make tallow candles with that required to run an electric light plant. Show the difference between making a road with pick and shovel, and the use of a steam crusher and scraper.

Bring out the need of a better education to day. A hundred years ago it was not necessary for most people to read or write. How is even a newsboy handicapped nowadays if he can not read the paper readily? Show how the increased use of machinery requires laborers that are more and more intelligent, and that ordinary workmen to-day need a better education than noblemen a few centuries ago, while the necessity for a thorough knowledge of all branches of work will be far greater a few years hence than it is now.



England's Coronation Chair

Point out the striking fact that the Spanish War was brought to a speedy close very largely because our common soldiers and sailors were educated men in their own lines of work. If anything broke or gave out they knew just how to mend it, whether it was a bit of complicated machinery or a suspension bridge.

Who can think of something else which the workman of to-day needs besides an education? As different qualities are suggested by the class write them on the board, to be taken up one by one. Why must he have a quick eye, and all his wits about him? Why does he need a sound, strong body? Why must he be a man of good habits? Why must he be honest? truthful? punctual? courteous?

Read or tell the old myth of Walhalla and its inmates. The only mortals who were allowed to go thither were those heroes who had died in battle fighting so bravely as to be thought worthy of immortality with the gods. These were borne to Walhalla after death by their messengers, the Walkürie, on their wonderful flying horses. Men who took no part in fighting were not thought heroes by the ancients. How do we rank such if they have done really brave deeds? What do we consider the necessary qualities in a hero? What heroes in every day life do you know of? What made them such?

Call the attention of the class to the recent order of the Chicago post-office department, forbidding the use of cigarettes on the part of all its messenger boys when they are either on or off duty, and refusing to employ a boy who has ever used them. Why should such an order be given? How does the use of tobacco interfere with any one's business ability? with his mental powers? with his health and strength? Why is it universally a hindrance to any man?

Review by finding whether your pupils have grasped the main ideas presented: that the great bulk of men and women in the world are people of average ability; that to them belongs the credit of having done most of the actual work of the world in the past, and that it will be their privilege to continue to do it in the future; that old ideas in regard to education and training will not fit people for present responsibilities; and that, above all, if one would play well his part in life the opportunity lies in his own hands. If he prepares himself for his chosen business, if he is brave and honest, with clean hands and a pure heart, he will be one of God's heroes, although he may never rank among the world's great ones.

"The fault . . . . . is not in our stars,
But in ourselves, that we are underlings."

Queen Victoria, whose recent death is a great world loss, and all the English sovereigns since Edward I. have been crowned in the chair pictured on this page. Under the seat is the famous stone from Scone Abbey, Scotland, which tradition identifies as the one upon which Jacob rested his head at Bethel.

High School

THE MAKING OF CITIZENS

"TO be a success," says Theodore Roosevelt, "a man must have the right kind of heart, he must be upright and decent, he must be brave, he must have common sense and intelligence. If he has these qualities he has the making of a first-class American citizen."

In monarchical countries the heir to the throne receives thorough training in the science of government from childhood. No detail bearing on his future work as ruler is too trivial for him to consider, no task too exacting. He must know his own country and his future people with their peculiarities and needs, and be able to protect their interests against the encroachments of foreign powers.

In America alone it is thought sufficient for the rulers to be born such, consequently our people grow to manhood and take to themselves their insignia of power, the right of suffrage, with little or no preparation for the mighty task of self-government, or the proper control of colonies. Gradually, however, we are finding out that optimism alone will not safeguard the state, or fit men for citizenship. They must be trained as thoroughly in its requirements as though each were to sit upon a material throne; thus only will the republic become the model government it is meant to be.

In what shall the training for citizenship consist? Roosevelt has well summed up the necessary personal qualities of the successful American citizen. These are fundamental, and every true teacher is already striving to develop them in her pupils. Add to them a clear knowledge of our country, its diversified needs and the difficult problems which must continually be faced, and impress upon our youth the public duties which confront him as he takes the ballot in his hand, and we shall have a first-class citizen as well as a first-class man.

By the time the high school is reached, young people should take particular interest in these questions; that too often they do not is evidence of our remissness in not bringing the matter before them in its proper relations.

Compare with them the administration of a government like our own, and the interests involved in a large estate. Call attention to the difference in training between those who are to assume great business responsibilities, and those who through their ballots are to decide the policy of a nation. Which class of people is better trained? Which class has more need of such training?

Bring out the necessary equipment for a good citizen. Set the class to finding what are the public duties of those who have reached the age of twenty-one. Direct their study by suggesting that they find out first the local duties of a citizen.

There is a town government. Have them learn what it consists of. Is it a republic on a small scale, or a democracy? What officers are necessary? What do they have to do?

How are the schools controlled? Who decides the courses of study? The length of the school year? How are the necessary supplies provided for?

Have the class make a list of all enterprises managed by the town; finding how it is lighted, policed, supplied with water. What are its sanitary provisions? What provision is made against fire? What franchises are granted, and under what conditions? How are the parks maintained?

Every voter has a voice in determining the policy of his own town in each of these respects, as well as in every enterprise in which his town can engage. Make it plain to your pupils that every one is responsible, as far as his own vote and influence go, for the wisdom or folly of these measures, for the character of the men in office, and for the manner in which they discharge their duties. If the town is badly governed the disgrace falls upon the just as well as upon the scoundrel. The remedy is in knowing the exact state of affairs, and in casting an honest, conscientious ballot.

But the citizen has duties to perform outside the limits of the town he lives in. He is also a resident of a state and a nation. What part has he to play in these wider spheres?

Take up the government of each in turn, and discuss with the class one's state and national duties. Make it clear that in every case the responsibilities of the citizen are exactly coincident with his powers. Whatever he can do he must do, and he must do it honestly. He is always his brother's keeper.

Show, also, how closely the personal element is united to civic responsibility. If the youth is not sober and upright, if he befogs his mind and lowers his moral tone by the use of narcotic poisons, he will not be able to measure correctly his own duties as a citizen, or demand a high standard from those whom he has helped to place in power.

NINETEENTH CENTURY NOTES

V. A NEW ERA BEGUN

"Watch what main-currents draw the years,
Cut Prejudice across the grain."

THE half-way milestone of the nineteenth century very nearly marked the dividing line between an old and a new era, for in the light of the following fifty years it is evident that the greatest achievements of the century were yet to come.

Old theories and traditions as to the relations of governments to their people and to each other had held out long, and on the whole successfully, against more liberal ideas, and although repeated revolutions had brought slight gains to a few of the smaller states of Europe, the chief progress of these years toward constitutional liberty is to be found in the fact that by repeated experiment its friends were testing their ideas, and thus learning little by little their points of strength and weakness all of which was slowly paving the way for ultimate success.

In material affairs, also, the greatest triumphs of science and invention were yet to come and to lend their aid to the solution of political problems. The possibilities of steam and electricity as aids to easy, rapid communication had barely begun to be developed. This very decade, 1850–1860, marvelled at the hitherto unparalleled speed of the steamship Pacific which in 1851 crossed the Atlantic in nine days, while not until 1858 did the first swift message between England and America speed over the completed Atlantic cable—a message both triumphant and prophetic, "Glory to God in the highest, and on earth peace, good will to men." This same decade brought the Bessemer steel and the vulcanized rubber processes, which laid the foundation for the great steel and rubber industries of all kinds. Yet "thousands of improvements in smaller things, which were to touch most closely the comfort and convenience of every individual, were still unknown or untried."

"Thus it is evident," says Professor Andrews, "that the material progress which, in the ensuing years, was to alter the conditions of industry by substituting a world market for a local market; to alter the organization of society by individualizing the mass of the people, raising the standard of life, and substituting a new relation of labor to capital for the old relation of labor to land; to alter the practices of governments, by bringing them into closer touch with their administrative and diplomatic agents, and by increasing their resources and extending the scope of their undertakings had not advanced sufficiently far to break up the old political and social habits and make possible their overthrow in 1848. The reaction that followed this revolution testified to the last attempt of the old ideas and methods to retain their supremacy and to neutralize the progress in political things that had been made up to this time."

The reaction from the revolution of 1848, as we have already seen, came swiftly and positively. Austria, which since 1815 had always represented conservatism, was again true to herself. She brought the rebellious Italian states into subjection, and compelled the withdrawal of the constitutions granted a few German states during the stress of the revolution. France, soon wearied of the uncertainties of her hastily established republic, fell into the plans carefully laid by her ambitious president, and by popular vote called him to an imperial throne. The times were dark for the lovers of liberty, but it was the darkness that precedes the dawn, and light broke in an unforeseen way.

A trivial quarrel had long been going on in the East between the Greek and Latin churches as to the control of certain "holy places" in Jerusalem which politically was under the dominion of Turkey, and in time Russia and France respectively became the recognized champions of each party. In 1852 the Sultan, in an amiable endeavor to please both parties, publicly granted the French demands and a few days later privately withdrew his order and decided in favor of Russia and the Greek church. The result was what might have been expected. The quarrel between the churches became one between the nations, especially as Russia, under the excuse of the necessity of protecting the members of the Greek church in Turkey, seemed about to interfere in the affairs of the Ottoman Empire in a way that to the alarmed statesmen of England and France foreboded the breaking up of that empire, and that to the advantage of Russia. Nor were they unwarranted in their forebodings, for Nicholas I. of Russia, in his now famous words, had called England's attention to the dangerous condition of the "sick man of the East," and had proposed a division of his estate whereby Russia was to take Constantinople, and England, Egypt and Crete. An intricate game of diplomacy was soon being played on the European chessboard in the vain hope of preserving peace, nor did it cease even while in the Crimean peninsula, England and France were pitted against Russia in the costly struggles at Balaklava, Inkerman and Sevastopol.

Austria throughout the war played a thoroughly selfish part. Anxious to lead in the diplomatic settlement of affairs which she knew would come at the end, she endeavored to maintain a maximum of influence with a minimum of aid to either side, and by pretexts of various kinds managed to avoid bringing her troops into actual service. As a consequence she angered both France and England, losing their confidence and much of her diplomatic

prestige in European affairs, as became apparent during the peace negotiations in Paris.

Thus one of the most significant results of the Crimean War was the displacement of Austria from the proud place of leadership she had so long held. Russia, thwarted temporarily in her plans, cherished for many years, for reaching Constantinople, lost her territory along the Danube and was obliged to withdraw for a time from an active part in European affairs, for the sake of building up her home resources which had been badly impaired by the war; Turkey, on the strength of promises of reform which she has never kept and probably never intended to keep, gained by the terms of the treaty adopted that freedom from interference from other powers which has made possible the abuses and atrocities which from that day to this at intervals have horrified the Christian world. It was Austria who selfishly risking least lost most, for her fall from leadership in the councils of Europe gave Italy and Germany the opportunities they were needing to work out unhampered independence and unity.

A master hand was at last at the helm of Italian destinies. Robert Blum, in speaking of Austria's repression, once said that "five men who managed the army can not understand that though their bullets may kill men they can not make a single hole in the idea that rules the world." So the Kingdom of Sardinia had never for a moment given up the cause of Italian independence she had so bravely but fruitlessly led in 1848 and 1849, and to the side of King Victor Emmanuel had come the statesman through whose wisdom, shrewdness and persistence Italy was fairly started on the way to independence — Camillo de Cavour. Convinced that the hope for Italy lay in Sardinia, Cavour set himself to the construction of a state which, by its liberality, its economic and political strength, should command the respect of the other Italian states and of Europe. Commercial treaties, internal improvements and military reorganization, all carried out with good judgment, soon marked the kingdom as one of the most progressive of Europe, and no man ever took more pains to advertise his business than did Cavour that every improvement or advance made in Sardinia should come to the knowledge of Europe, either through a judicious use of the press, or through the reports of returning travelers, who were given every opportunity to compare the progress of Sardinia with the arbitrary and often foolish systems of the other Italian states.

The same motive that kept Austria from joining actively in the Crimean War took Sardinia into it as the voluntary ally of France and England, namely, the hope of actively sharing in the diplomatic discussion at the close; and so well had Sardinia played her part that when the representatives of the courts of Europe came together to settle the terms of peace, Sardinia, to the great mortification of Austria, was admitted on equal terms with the other great Powers, and her grievances against Austria, although not acted upon, were laid open for the consideration of Europe, and Austria who "had entered the Congress as a mediator, went forth accused and discomfited."

"Where'er a noble deed is wrought,
Where'er is spoken a noble thought,
Our hearts in glad surprise, to higher levels rise."

From that day forth, Austria played into the hands of Cavour who, with quicker-witted, diplomatic insight, saw that a war with Austria for Italian independence must eventually come, and skilfully provoked Austria to its declaration. The war of 1859 was short but momentous in its results; Austria gave up Lombardy; Modena, Parma, Tuscany, and the Romagna voluntarily voted in favor of annexation to Sardinia, while the conquests of Garibaldi brought in the two Sicilies before the end of 1860, and the opening months of the next decade saw the king of Sardinia proclamed king of Italy, and the birth of a new nation into the family of Europe. Rome and Venice were yet to be won, but modern methods of government and

the idea of the rights of kindred peoples to unite into one nation had won a signal victory over the traditions and prejudices of Europe which clung to the institutions and established governments of the past.

Not among the least of the results of the Crimean War was the work of mercy there inaugurated by Florence Nightingale in the fever-smitten camps and hospitals. Out of the confusion which left medicines to spoil in the holds of vessels, or in places where they were not wanted, and provisions where they could not be found to supply the needs of men who were dying from exhaustion, Miss Nightingale brought order and relief, endearing herself to the thousands who came under her ministries, while in the train of her efforts came ten years later the great work of the Sanitary Commission in the Civil War in America, and in time the wonderful Red Cross organization, which to-day is ready with its relief in all the great emergencies which bring want and suffering.

While Italy was winning her freedom, across the seas in the land whose foundations had been laid in liberty, the air was full of ominous signs of the swift-coming conflict which was to decide the great question whether a free nation could endure as long as it held a great race in personal slavery. All through the fifties the case became more desperate. Slavery was drawing its coils more and more tightly about the life of the Union and seemed to be entrenching itself beyond all possibility of destruction. The Fugitive Slave law compelled the return of negroes found in a free state; the Dred Scott decision made slave-holding possible in any free state; the repeal of the Missouri Compromise led to the bloody warfare over "squatter sovereignty" in Kansas and Nebraska; "Uncle Tom's Cabin" was bringing to thousands of homes a vivid realization of how great were the horrors and perils of slavery, and was adding to the volume of anti-slavery sentiment which was also being swelled by the stirring, appealing messages of the band of New England poets. The older generation of statesmen disposed to compromise with slavery was fast passing, and into their places came men of strong, positive anti-slavery opinions. Dissension grew apace, and the decade closed with Lincoln elected to the presidency, and southern threats of secession becoming realities. The same months that witnessed the birth of a united Italy saw the American union broken.

Yet the struggles, the apparently baffled efforts of the first half century were beginning to bear fruit, for men were learning that liberty could not be won in a single day, but came as the result of obedience to certain fixed laws of progress, and only

> "part by part to men revealed
> The fulness of her face;"

while the abolition of privateering in war, the deeds of mercy in the army, and the steady progress of anti-slavery sentiment showed a growing spirit of humanity and a sense of the responsibility of man for man.

STUDY OF THE ALCOHOL QUESTION

A series of articles, analyzing the present condition of scientific inquiry concerning the alcohol question, is being issued by this department, under the title of "The Progress of Scientific Inquiry as to the Action of Alcohol on the Human System." The series will take up the points involved in the question, "Is moderate drinking harmful?" and will give the results of accredited original investigations, in the language of the investigators themselves as far as possible, together with the opinions of unbiased specialists. Full references to original literature will also be given. It is urged that all friends of total abstinence unite in giving these leaflets wide distribution. They may be obtained at the National Department of Scientific Temperance Instruction, 23 Trull St., Boston, Mass. Price 35 cts. per hundred.

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67. Is Alcohol a Medicinal Panacea?

"Great truths are portions of the soul of man;
Great souls are portions of Eternity;
And every deed which shall outlast Time's span
Must goad the soul to be erect and free."

PHYSIOLOGY TOPICS FOR FEBRUARY

PRIMARY — Upper Limbs; Arms, Hands, Fingers. Eye and Sight. Ear and Hearing. Blood and its Work.

INTERMEDIATE — Brain and Nerves. Cigarettes and Tobacco. Respiration.

ADVANCED — Skin. Respiration. Secretion. Excretion.

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The School Physiology Journal

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PUSSY WILLOW

"The brook is brimmed with melting snow,
The maple sap is running,
And on the highest elm a crow
His coal-black wings is sunning.
A close green bud the Mayflower lies
Upon its mossy pillow;
And sweet and low the south wind blows,
And through the brown fields calling goes,
'Come, Pussy! Pussy Willow!
Within your close brown wrapper, stir;
Come out and show your silver fur,
Come, Pussy! Pussy Willow!'"

"Soon red will bud the maple trees,
The bluebirds will be singing,
And yellow tassels in the breeze
Be from the poplars swinging;
And rosy will the Mayflower lie
Upon its mossy pillow;
But you must come the first of all—
'Come, Pussy!' is the south wind's call—
'Come, Pussy! Pussy Willow!'
A fairy gift to children dear,
The downy firstling of the year—
'Come, Pussy! Pussy Willow!'"

HISTORY REPEATS ITSELF

THAT all persons are entitled to certain inalienable rights, among which are "life, liberty and the pursuit of happiness," and that an infringement of these rights by legalized authority is just cause for rebellion, is the fundamental principle in the Declaration of Independence. In other words, our republic owes its existence, as does progress throughout the world, to the exercise of the right of rebellion against oppression. The oppressed have not always first thought out and formulated a statement of these rights in appropriate phrases, and then sought redress through legal channels. Goaded by suffering, their first resistance has frequently expressed itself in methods as startling as they have been unreasoning, in the frenzied opposition of down-trodden peoples to tyrannies no longer bearable.

The young French girl who, on that cold, rainy morning of October 5, 1789, rushed into a guard-house, and seizing a small drum ran through the streets of Paris, shouting "Bread! Bread!" beating the tambour as she ran, may have known nothing of the theory of inalienable rights, but she personated them, and thousands of women with their hungry children in their arms rushed to her side, all shouting "Bread! Bread!" Armed with pikes, staves and guns, and reinforced by men with two small cannon, they followed the girl's wild cry which changed to "*A Versailles*" as they rushed on to the doors of the distant palace, the home of a power which had oppressed the people with ruinous taxation and a tyranny appalling to read of, in order to support the luxury of successive infamous courts.

That motley crowd, and the awful scenes of the French Revolution which followed, represented rebellion against centuries of oppression which could no longer be endured. The young French girl who, to the beat of the drum, shouted "Bread! Bread!" could not have devised a constitutional government which would have insured liberty to the people; that came later, the work of another class of minds. But her frenzied cry of rebellion against a tyranny that violated inalienable rights sounded the death knell of monarchical government in France.

Something like this has been a prelude to all great epochs in the progress of human liberty. The Magna Charta from which all constitutional liberty has sprung was wrung from old King John after endurance of long and untold oppression by the people. King John's fear of his armed and rebellious English subjects, who called themselves the "army of God," brought the Magna Charta. The illegal destruction by our fathers of property in tea, shipped under the British flag to which they owed allegiance, expressed their ideas of the right of rebellion against infringement on inalienable rights. John Brown's raid is another instance of rebellion against legalized wrong. "His body lies mouldering in the grave, but his soul is marching on," and on it will march until the inalienable rights of humanity are no longer trodden under foot by greedy and selfish oppressors.

A hospital for pestilential and contagious diseases, placed in a populous community, would be such an infringement upon the inalienable right to life, liberty and pursuit of happiness consequent upon health that the individual who should attempt to put such an institution near the homes of men in city or country would be dealt with as a criminal.

No lazar house can compare with the open saloon in its destruction to life, liberty and happiness. Alcohol, which is the basis of all liquors the saloon sells, is a poison, an exciting, seductive poison that wins by promising pleas-

ure by the use of a little. But that little has the power to create the uncontrollable appetite for more which destroys the liberty of the drinker, and slowly changes his character as it dulls his brain, blunts his conscience, hardens his heart, destroys his ability and all that makes life worth living, until death ends the tragedy. The life, liberty and pursuit of happiness of not only the drinker but of those allied to him are all involved in the pestilential catastrophies which, in the nature of things, are constantly emanating from the saloon.

Alcohol so quickly destroys the money-earning power of its consumers that to keep up a good paying custom the venders of these beverages must constantly seek new buyers. Hence, by the nature of their business, if it is successful, they become enticers as they prey upon every available new victim, especially from the ranks of the youth of a community.

There is not a sadder, more heart-rending picture for a Christian woman to face as a part of her personal experience than to see husband or son enticed into these fatal traps which crush the inalienable right of life, liberty and happiness. The aggregated cries of agony of these broken-hearted wives and mothers if they could be sounded in one voice would rend the heavens. It is no wonder, then, that history is repeating itself in Mrs. Nation of Kansas, who is asserting the right of rebellion against this unspeakable oppression which in Kansas is not even a legalized tyranny. Constitutional and statutory law there both forbid the traffic which, it seems, has flaunted unchecked its deadly wares as unblushingly as though it were not a law-breaker. Mrs. Nation's career concerning this condition of things recalls another mother in Israel who said of punishers of wrong, there were none "until I, Deborah, arose." Time will decide how far the rebellion against the saloon, inaugurated in Kansas, is to spread, and how thoroughly it is to triumph there. This much we know, that both experience and science have proved alcohol an outlaw, ever at war with man's best interests, and its further toleration in this new century is only a question of time.

Men engaged in that dreadful traffic will be financially wise if they seek other business, and those who cater to that power if they are clear-sighted can see even now the mystic words, "Mene, Mene, Tekel, Upharsin" written on the wall over this destroyer of the people.

MARY H. HUNT.

The Palace and Park at Versailles

CORRECT BY COMPARISON

A little boy came home one afternoon and proudly displayed to his mother a merit card.

"Good," said the mother, "how did you get it?"

"I went to the head in nature study."

"Why, nature study at your age? How did it happen?"

"The teacher asked me how many legs a horse has?"

"And what did you say?"

"I said five."

"But my dear child a horse hasn't five legs."

"I know it, mother; but the other boy said six."—*The Educational Gazette.*

THE CONNECTICUT COUNCIL OF EDUCATION

THE well known scholar and philosopher, Joseph Cook, said recently before a Boston audience:

"The victories of the future will belong to those who keep closest to the facts; but the facts must be all the facts."

No cause, no advocate of a cause can expect to win a victory in these days by distorting, eliminating or suppressing any of the facts that are essential to the right settlement of a question with which he identifies himself. Nor can any man who claims a place in the scientific world hold that place and command confidence in his utterances if he makes mistakes in his marshalling of facts or in his deductions from facts, and persistently clings to these mistakes.

At a recent meeting of the Connecticut Council of Education, Professor Atwater reiterated his former charges against the present temperance instruction in the schools, charges which were based on conclusions drawn from his experiments which have been shown to be untenable by leading medical journals and by well known professors in our medical colleges. Nevertheless, at this Connecticut meeting he again asserted that the indorsed school physiologies are untruthful because they teach that "alcohol is in no sense a food but always a poison." Thus, as a prominent scientist has said of him, "Professor Atwater ignores the scientific testimony against him and goes right on reiterating to the laity his unjustifiable charges."

He has been shown to be incorrect in saying that the doctrine the indorsed physiologies seek to impress upon the minds of the children is that alcohol, even in small quantities, is always harmful and never useful. What these books do emphasize is that alcoholic drinks, even in small quantities, are always dangerous, because alcohol always has the power to create an uncontrollable appetite for more. Whether it may or may not, like opium, chloroform, strychnine and prussic acid, be sometimes useful as a medicine, the school books neither affirm nor deny. They leave that question to medical text-books.

Professor Atwater does not correctly represent the attitude of present scientific investigation of the alcohol question when he says it does not oppose the moderate use of alcoholic beverages. Published reports of hundreds of most exact experiments, some of which have been conducted during the past decade in the most renowned universities of the world, have shown definitely and precisely the injury that alcohol does, though taken in small quantities. In England, we have such men as Dr. Victor Horsley, Professor of Chirurgy in University College, London, an eminent surgeon and brain specialist, saying that total abstinence has a scientific basis. In Austria, we have Professor Kassowitz saying that alcohol is not both a food and a poison, but a poison only; in Germany, we have Professor Kraepelin saying that the working man strikes down the very source of his power by the habitual moderate use of alcohol; and, in Russia, we have the recent report of a commission composed of leading scientific men who say, after an exhaustive study of all the evidence up to date, that the opinion often promulgated of the harmlessness of the habitual but moderate use of intoxicating substances must be regarded as completely erroneous.

No man claiming to be a scientist can command confidence in the face of such overwhelming testimony against him unless his own work has been at least free from error. Professor Atwater's work has been convicted of error in most important respects, nevertheless, he continues to make the same unjust criticisms, based on erroneous deductions from his own experiments which did not prove what he claimed for them.

The truth as to the character and effects of alcoholic drinks has ceased to be a matter of opinion and has become one of demonstration of evidence which an intelligent person can weigh for himself. All the question needs for right settlement is careful examination of the evidence and suspension of opinion until it is weighed. The facts are accessible and are constantly accumulating. Their effect in deciding the future sobriety of the people will be, what truth on all matters vital to human destiny has ultimately been, insuppressible, irresistible, and determinative.

HE KNEW WILLIE — "Georgie," said his mother, "I will not whip you this time, if you promise to be a good little boy like Willie Jones." "Mamma," said Georgie, earnestly, "whip me, please."—*Ex.*

HERALDS OF SPRING

Slowly the earth is awaking,
Its pulses beat more strong,
The beauty of spring is breaking
Beneath the bluebirds' song.
The tender twilight is length'ning,
The wind more softly blows,
The fields are changing to verdure,
The brook more swiftly flows.

Sweet, sweet! the robins are singing,
Swinging 'mid budding trees;
Spring! Spring! the south wind is calling,
As it blows o'er the leas,
With a host of gallant courtiers,
Up through the fields and lanes,
Spring comes in her robes of splendor,
Queen o'er the land she reigns.

—LOUISE LEWIN MATTHEWS.

THE FACE

"A good face is a letter of recommendation."

TO make the face beautiful we must "carve it from within, not dress it from without." Heredity and physical training can do much for the child, but not everything. The finer part of his development must come from the awakening of his mind and soul, and as these higher powers unfold they will be mirrored in his face.

Character, then, is the real secret of human loveliness, and it may reach its greatest perfection in those to whom nature has been apparently most unkind. If we make it the keynote of our work with children their responsive natures will give back the same true ring and unconsciously to themselves they will grow into the likeness of the pattern we have shown.

EXPRESSION OF THE FACE

Choose a bright sunny day to talk about the face, and have green, brown and yellow crayons ready for blackboard use.

Familiarize yourself with the old Greek myth of Clytie, and then tell the children about this fair young maiden who was so fond of the sun that she watched every morning for it to rise, and lovingly followed its course all day long. By and by her own face grew bright and shining, like the beautiful sun she looked at, and one day people found a new flower in the garden. It had a golden fringe around its blossoms and all through the day it kept its face turned towards the sun.

"It is Clytie," they said; "she has changed into a sunflower."

Sketch a sunflower on the board, using the colored crayons, and outline a girl's face inside the yellow rays of the blossom. Make the picture an attractive one and talk about it with the children. Find how many have seen the sunflower. Does it look like a person's face?

Tell how these blossoms turn to keep the sun in sight all through the day until their stalks are too old and stiff to move back and forth.

Let us play we are sunflowers. What kind of faces must we have? Hold up pictures of happy, smiling people. Why do we like to look at anybody who smiles and looks pleasant when we speak to him? How can we make people glad to look at us?

Help the little ones to understand that no one can have a bright happy face very long unless he feels bright and happy, because the face always shows how one feels. When we are cross or selfish little lines and puckers come into our foreheads and tell the whole story to everybody who sees us.

Read or tell the children about Ernest in Hawthorne's story," "The Great Stone Face." Trace the connection between Ernest's life and the expression he came to wear. Tell them why this plain country lad who stayed quietly at home and had no chance to do great deeds grew to look like the Great Stone Face as he came to manhood. Why was there no such likeness on the faces of the famous general and the man who made money-getting his chief aim in life?

Ask each child to name some one whose face he thinks lovely. Help all to think what makes such a face beautiful. Show pictures of the Sistine Madonna, of Queen Louise of Prussia and of Washington. Why do we like such faces? What do they tell us about the people themselves?

SHAPE OF THE FACE

Have ready a pile of kindergarten blocks and let the children select from it those which are shaped something like a person's face. What do we call this shape?

Name a fruit which is oval shaped. Sketch an egg on the board and ask the children what we call these ovals which we sometimes have for breakfast. Ask them to draw an oval.

Hold up the prettiest picture you can find of a cat. Ask what the shape of its face is. Which one of the blocks is it like?

Name other well known animals and show pictures of each, or outline their faces on the board. Help the children to decide correctly upon the shape of each. How do these faces differ from one another? from people's faces?

Let the children find where the face is the broadest; the narrowest. How shall we hold an egg to have its shape like that of the face?

Hold up an egg with the small end down and ask the children to tell how the oval of the face differs from the shape of the egg. Call their attention to the smooth surface of the egg, the irregular surface of the face. What do we call these different parts of the face? Point to each.

PARTS OF THE FACE

Call attention again to the children's drawings of the oval. In what way do these look like faces? How are they different? What else do they need to make them look right? As the class name the parts of the face show

them on the blackboard how to represent each in their drawings.

Clay for modeling is inexpensive and should be in every primary schoolroom. Wherever it is to be had let the children model the whole head after they can draw the face.

Place the best of their models on a table in front of the class, and ask one after another to point to the parts of the face as you name them. Let them do the same in the case of animals, using casts or pictures as illustrations.

Help them to find likenesses and differences between parts of the face in people and in animals. Call attention to the various ways in which the eyes are placed in animals, the nose, forehead, ears.

Show how the cheeks and mouth differ in the bird, squirrel, horse, cat, fish, and other well known animals; then how these features compare in shape, size and appearance with those of the human face.

USES OF THE DIFFERENT FEATURES

Have the children find the parts of the face which feel hard to the touch; those which feel soft. Tell them that the parts of the body by means of which we think and know what is going on are kept in this oval box which we call the head, and that all the walls of the head must be firm and strong to keep the precious parts within from getting hurt.

Why are the cheeks and lips soft? If the children can not tell, explain that soft parts are needed to cover up the bones and help to make the face attractive. Show that all the hard parts of the face have at least a thin soft covering, and that it is much thicker in some places than in others. Explain why.

Ask the children to find whether the nose is hard or soft. Would it be strong enough to stand out from the face if it were as soft as the cheeks? Show that it does not protect the parts within so much as the forehead does, hence does not need to be quite so hard.

How many doors and windows has the face? Count them. Help the little ones to tell what the eyes are for; the nose; the mouth. Call attention to the shape of the eye—round, so that it can move easily in any direction. Show how it is protected by the lashes, lids and eyebrows. How does each keep it from harm?

Point out the little partition in the nose, giving us two nostrils to breathe with. How is this a help when we have colds?

What do we find in the mouth? Show how the tongue is a help to us by having the children try to speak or eat without moving it.

An entire lesson should be devoted to the teeth a little later, showing the children how many teeth they have at this age; when and where the first permanent teeth appear; the necessary differences in appearance and use between the front and back teeth; the kinds of food best suited to build up strong, healthy teeth; and the care the teeth need to preserve them. In connection with a lesson on the face it will suffice to show what the teeth are for; why we have two rows instead of one; and how to keep them clean and white.

"We'll give her a bath, and then she'll be all right."

Call attention to the covering of the face. What do we call it? Help the children to see how the skin protects and beautifies the face. Compare with that of animals. Show how the faces of animals and all parts of their bodies are kept warm in winter by a covering of hair, because they are often exposed to the cold and can not put on clothes as we can.

CARE OF THE FACE

A child can doubtless be made to keep hands and face clean if he is continually reminded of his need of soap and water, but there is a better way.

Little children love to play in the dirt and at all proper times they should be so dressed as to allow them to get near to Nature's heart. When play is over, however, the question of cleanliness arises, and here the ingenuity of mother or teacher must come to the front. Present the necessary facts in story form as far as you can, remembering that when the child's interest is awakened he will be less likely to forget them. A busy mother trained her boy and girl to care for their own faces and hands by the story of

UNFORTUNATE EVA

Jenny had a large doll for her Christmas one year. It had blue eyes and long golden curls, and Jenny thought her Eva, as she called her, the finest doll in the country.

One day something dreadful happened to Eva. She had been invited to a tea party under the maples, and Jenny forgot to take her home afterward.

By and by Snip, the puppy, came along and, of course, he thought Eva had been left there just for him to play with.

Fortunately, Jenny came to the rescue before any great harm had been done, but poor Eva's face and clothes, too, were badly soiled, and she didn't look at all as if she had just been to a party.

"I'll tell you what to do," said Jenny's brother Scott. "We'll give her a bath, and then she'll be all right. There's a tub of water just around the corner. Bring your other dolls along and we'll clean them all up."

It was great fun. Poor dirty Eva was rubbed and soaked until the dirt was quite gone, then Jenny held her over the tub while Scott rinsed her off with fresh water from the pitcher.

When Eva was quite clean the children left her in her little chair by the fire to dry, and ran off to play.

An hour later mother called them in to see what had happened. The hot stove had been too much for poor Eva. All the pretty color had left her cheeks and eyes and had run down on her clothes. There never was another such a forlorn-looking doll.

Poor Jenny was ready to cry when she saw her, so mother came to the rescue.

"We shall have to send Eva to the hospital," she said, "and I think she'll come back as good as new. But you must keep her away from the fire next time, and clean enough so she won't need washing. If her face should get soiled you can wipe it off gently with a soft cloth without putting it into water."

"Why can't we do that with our faces, too?" asked Scott. "You make us wash them two or three times a day, and I don't see any sense in it."

"Come here and I'll tell you," said his mother. "How do your faces feel when you've been running or playing hard?"

"They are all sweaty," said both children.

"Look through this magnifying-glass at the back of my hand, and you'll see where this sweat, or perspiration, comes from. What do you find?"

"Why, your hand is all full of little holes," said Scott. "Is that the way it is on my face?"

"Yes, these tiny holes or pores are all over the outside of our bodies. They let out some of the waste matter which we ought to get rid of. This is one reason why we need to wash our faces and hands often, so that these little pores can do their work well. If you keep them choked with dust, by and by you will lose your rosy cheeks and bright complexions just as Eva has, only not for the same reason."

"Well, I don't mind washing up if that is why you make us," said Scott. "I won't grumble about it next time."

Bring a large china doll into class and use as an object lesson to show the children how to wash and dry the face. Have a tiny wash-cloth for them to use as well as soap and water, and let them practice on the doll until they can do it just right, getting no soap into dolly's eyes or mouth, and drying every little corner perfectly with the towel.

Why do we lose our rosy cheeks if we are ill and have to stay in the house? What does the sun do to our hands and faces when we play outdoors every day?

Call attention to the way trees and flowers and grass grow when the sun shines on them, and show that people need sunshine just as much. How shall we leave our bedroom windows at night in order to have pure air to breathe while we are asleep? Why do we need to let the fresh air and sunshine into all our rooms, as well as to be out in it every day? Who can think of the best ways to have a bright, sunny face?

Mamma—"Bessie, how many sisters has your new playmate?" Bessie—"He has one, mamma. He tried to fool me by saying that he had two half-sisters, but he didn't know I've studied arithmetic."—*Union Signal.*

THE WIND'S MESSAGE

Wind in the winter tree
What is the word you bring?

"Listen," the Wind replied,
"Mine is a message dear
Sent to the youthful year
Telling of buds that hide
Waiting the first faint sound
Of a light foot on the ground,
And the call that sets them free;
Telling of birds that await
Close to the southern gate
For the earliest echoing
Of a softly fingered string
On the fairy lute of spring.
This is the word. And see,
Starring the rocky ledge
I set a perfumed pledge."

Thus the Wind answered me.
And lo, a flower at my feet
Suddenly showed; and then
I breathed in the fragrance sweet
And knew it was spring again.

—*Selected.*

GERMAN VIEW OF TEXT-BOOK TEACHINGS ON ALCOHOL

NOW that Professor Atwater is again charging that the indorsed physiologies are inaccurate because they teach total abstinence (see page 99), the following article is most timely in showing that German teachers and scientists are demanding that the text-books in that country which do not teach total abstinence must be revised to teach it in order to be accurate and reliable :

A FALSE ESTIMATION OF ALCOHOLIC DRINKS : A SERIOUS FAULT IN OUR TEXT-BOOKS

From the December number of *Die Enthalsamkeit*, the official organ of the German Society of Abstinent Teachers.

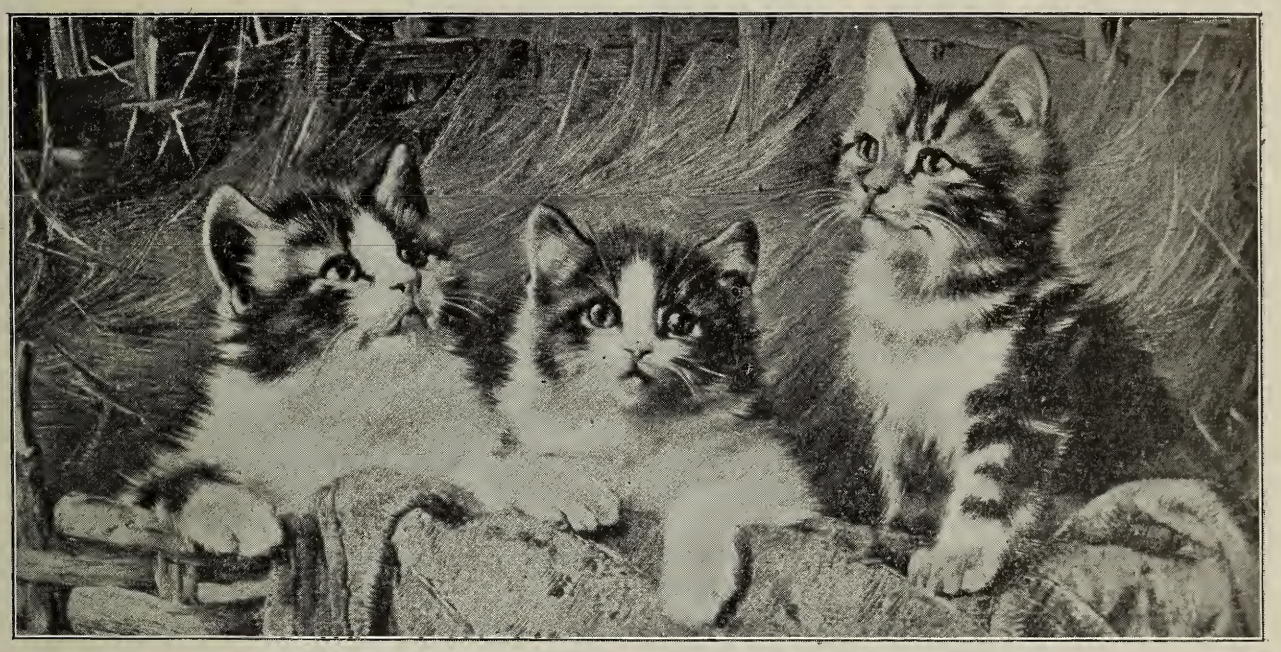
School text-books can not be scientific works unless their total contents are in harmony with science, and their trend is toward sure conclusions. Small matters, in and of themselves unessential, become of much greater importance when they touch upon questions concerning the health and welfare of the people. Here it becomes our unavoidable duty to see that our children are correctly taught, and unquestionably also that our school text-books give adequate treatment to the respective facts.

The use of alcoholic drinks is a matter in which this duty should receive particular attention at present. The incalculable sacrifices exacted by drunkenness are greatly increased by the erroneous current opinion that a moderate use of alcoholic drinks is not only harmless and without danger, but may often be advantageous.

This erroneous opinion has also worked against the schools. It can be only a question of time when the whole German teaching profession will recognize this exceedingly important problem and will enter with full zeal upon its solution. But until then the teacher's opinion of alcohol as a popular drink will be influenced by the current false conceptions, and very materially so by the value placed upon alcoholic drinks in our text-books. These faults are of yet greater importance in the books used by the pupils themselves and for this reason they should be speedily corrected. Failure to do so will not only reveal a critical lack of necessary knowledge but will be a serious trespass upon public welfare.

The following examples are cited to show the erroneous valuation given to alcohol in German school literature :

"Wine and spirits in small doses are an important means of enjoyment and quickly increase activity and working ability. . . . If the poor man uses spirits to increase his working ability, without repairing his bodily loss with substantial food, he thereby destroys his body. . . . Beer contains much less alcohol [than spirits] and much more nourishment. The danger, therefore, of the injurious effects of alcohol from the liberal use of beer is not so great as with spirits. The effect of beer is an agreeable invigoration ; it quenches thirst, aids digestion, and gently rouses the nerves. When used in excess it is intoxicating."



" 'Purr-r-r, perhaps,' said the willow pussies that grew on the buried brook's brink,
'Purr-r-r, perhaps,' said the sleek willow pussies, the spring is more near than you think."

Alcoholic drinks are indeed an important means of enjoyment but only in a bad sense. In small doses they diminish the physical as well as the mental working ability. The workman can not increase his working ability by alcohol ; this has been clearly shown thousands of times, and the injurious action of alcohol on the body will not be repaired by substantial

food. Beer contains a nowise small amount of alcohol. In one liter is about as much as in one-eighth of a liter of brandy, and while on the one hand it contains ten times as much carbohydrates as does brandy, on the other hand there is usually no lack of carbohydrates in the diet of most men. The liberal use of beer, moreover, is no less injurious than spirits. Professor Dr. von Bunge shows that beer is a much more dangerous drink. There is, indeed, no doubt that much more organic disease is caused by beer than by spirits. Furthermore, beer does not quench thirst, but excites to more drinking; it does not aid digestion but hinders it; and finally it does not act healthfully upon the nerves, but encroaches upon them and is the cause of numberless diseases of the nervous system. All this is established upon exact natural science and is besides of great practical importance. There is, therefore, occasion for the sharpest censure when a natural science text-book contains such propositions as are here presented. Other false estimations of alcohol given in various books are:

"Wine and spirits are not food, but used in small doses they stimulate digestion."

"The grape vine is very useful on account of its grapes which furnish the good, beautiful wine."

"Spirits are not to be rejected as a strengthening means."

"Wine rejoices the hearts of men and is the most generous and acceptable drink, and for this reason it is the indispensable offering at feasts. Used moderately and unadulterated it is entirely beneficial for the sick, under some circumstances it is the best physician. Its copious use causes disease."

"Wine is the most generous of drinks that rejoice man, as the Psalmist says, and for that reason it is not omitted at any joyous feast. Used moderately and unadulterated, wine is not injurious to healthy men; to old people it is even very beneficial (milk of old age). Its beneficial action rests upon the fact that if not habitually used it will animate the nerves, strengthen the digestive organs, refresh the weary and sharpen the mental activity. Used in excess it acts directly oppositely, it intoxicates like all spirituous drinks and injures the health."

Here is the same ever recurring, fundamental error, that a moderate use of alcoholic drinks may be accompanied by healthful action. We must emphasize the opposite, that no qualitative difference exists between the action of small and of large doses of alcohol. Large doses cause large injury and small doses small injury; but no one can speak of a beneficial action. As a medicine alcohol has been enormously overrated and to-day physicians are asking themselves whether alcohol is really needed as a medicine.

What is to be remarked particularly in the above citations concerning alcoholic drinks is not the repetition of old, often refuted errors, but that we must no longer suffer these errors in our school books. We have to present to our youth what science teaches and what promotes public welfare, and both imperatively require that we tear the deceitful mask from the face of alcohol and show it as it is,—a poison. This must be done on stated occasions through instruction, in the first place, but also in all school text-books.*

Oral Teaching.—In a small school an inspector was examining a class in geography. He had failed to puzzle the bright youngsters and in despair demanded at last to know what the equator is. There was a momentary pause, and the inspector smiled triumphantly. But the smile had hardly got to its widest limits when a fierce-looking boy with a great shock of tangled hair growled out the answer: "The 'quator," said he, "is a menagerie lion running 'round the earth."—*Ex.*

Dr. Grace Peckham Murray, a well-known and authoritative writer in regard to children's diseases, begins in the March *Delineator* a series of four valuable chapters dealing with The Child. The first article speaks of "The Child at Home." Every mother and teacher should read these articles as they appear.

Love your children and they will love you in spite of all your shortcomings; keep faith with them and they will keep faith with you; treat them courteously and they will be courteous; maintain high ideals and they will follow them; make them the centre of your life and they will make you the centre of their lives.—Caroline Leslie Field, in the February *Ladies' Home Journal.*

"Papa," said little four-year-old Margie, "I think you are just the nicest man in the whole world."

"And I think you are the nicest little girl in the world," replied her father.

"Course I am," said Margie. "Isn't it queer how such nice people happened to get into the same family?"—*Union Signal.*

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* What these German authorities demand should be taught in their school text-books is exactly what the American indorsed physiologies teach, and yet it is this special feature of their instruction that Professor Atwater has criticised so severely. He denies what German scholars assert, namely, that there is a physiological basis for total abstinence.

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"Hang out your flags, birch and willow!
Shake out your red tassels, larch!
Up, blades of grass from your pillow!
Hear who is calling you — March!"

A SCIENTIFIC BASIS FOR TOTAL ABSTINENCE

IN criticising the character of the temperance instruction given in the public schools, Professor Atwater said, in his Chicago address: "It is neither wise nor just to teach that the doctrine of total abstinence rests upon undisputed principles of either physiology or morals."

If instruction had waited for truth to be "undisputed," progress would still have been in shackles. The findings of science reported by its trustworthy exponents, though these may at first be challenged, have, and from the irrepressible character of truth, ever will have, the final hearing. If there are no physiological reasons for total abstinence then there are no moral reasons for it. For it is not right to oppose alcoholic drinks if alcohol is not by nature a dangerous beverage with power to do great harm.

THE DANGER OF SMALL QUANTITIES

The following statement was signed in 1896 by thirty-five eminent physicians of the United States, as a formula to be taught children and youth in our public schools: —

"Alcohol, like other substances of a narcotic nature, has the power when taken frequently, even in small quantities, to create a diseased appetite for more which may become uncontrollable, and its gratification destructive."

Professor Dr. L. Meyer, of the University of Gottenburg, said: —

"Naturally the lighter alcoholic drinks cultivate a taste for the stronger liquors. Those who make statements in conflict with the indubitable facts of statistics must either be ignorant of these facts, or else they attempt to pervert them in order to apologize for their own habits."

THE EFFECTS OF SMALL QUANTITIES

"The question at issue," Professor Atwater says in an article on alcohol in the November *Harper's Magazine*, "is its effects when taken in small or moderate quantities."

The eminent Dr. Horsley, Professor of Chirurgy in University College, London, gave a lecture recently on the effects of small quantities of alcohol on the brain. In closing he said: —

"The contention so often made that small doses of alcohol, such as people take at meals, have practically no deleterious effect can not be maintained." "From the scientific standpoint total abstinence must be the course if we are to follow the teaching of truth and common sense."

At the Fifth International Congress Against the Abuse of Alcohol, held at Basle, in 1895, Dr. Forel, Professor of Psychiatry at Zurich, Switzerland, said that the researches of Smith and Fürer show that total abstinence rests on an absolutely scientific basis.

In the *Boston Medical and Surgical Journal* of Sept. 6, 1900, Dr. H. F. Hewes, Instructor in Physiological Chemistry in Harvard Medical School, said: —

"The sum total of all the results of alcohol upon the body metabolism certainly inclines the unprejudiced student to agree with Horsley that total abstinence has a scientific basis."

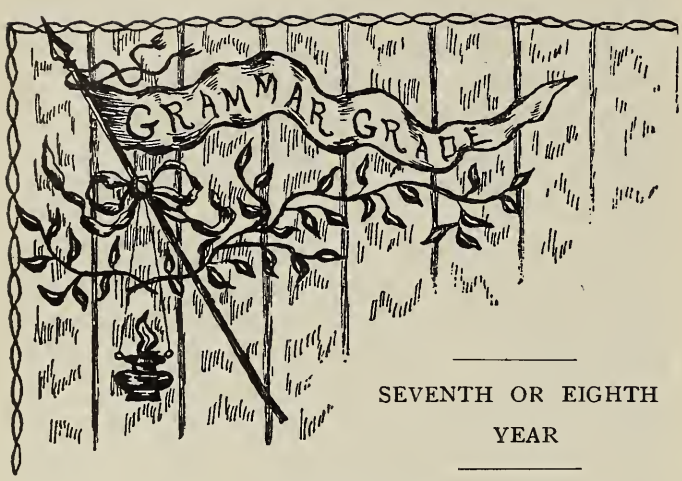
A Russian Commission for the Study of Alcoholism, composed of many eminent physicians, working jointly with representatives of numerous leading scientific societies receiving from the public treasury of Russia an appropriation of 15,000 roubles ($11,250) has just reported a number of conclusions which are the outcome of their numerous physiological researches and discussions. Among them is the statement that it is impossible to specify how small a drink of alcohol would have no injurious effect. The Commission says:

"The opinion often promulgated concerning the so-called complete harmlessness of the habitual, but moderate consumption of intoxicating substances, must be regarded as completely erroneous. Moreover, no one is able to assume that the man who absorbs alcohol continually will remain within the limits of moderation."

Two years ago the International Congress Against the *Abuse* of Alcohol changed its title to the International Congress Against the *Use* of Alcohol.

Said Dr. Koppe, in his recent report to the Russian Commission for the Study of Alcohol, "The *abuse* of alcohol commences with its *use*."

The foregoing testimony represents a consensus of expert opinion which abundantly justifies teaching total abstinence from both physiological and moral reasons. No truth new to the public consciousness, especially if it rebukes a popular evil, is ever at first "undisputed"; nevertheless, if it is true, every lover of truth and humanity should be its herald.



SEVENTH OR EIGHTH YEAR

TOBACCO

IN the wooded regions of the Alleghanies a hunter once shot a large eagle. Surprised that the king of birds should be such an easy victim, he ran to pick up his prize and found one of the eagle's legs fast in a powerful steel trap. It was evident from the battered condition of the trap that the eagle had struggled long and fiercely to rid himself of his burden, but to no purpose. Although he could still fly, his every movement was hampered by the weight and at last it brought him within range of the hunter's rifle.

It is only occasionally and by accident that bird or beast is thus prevented from living an untrammeled life, but so common has it become for people to bind upon themselves the shackles of a depraved appetite that only the exceptional youth is free to make the most of himself.

"What's the harm in a cigarette now and then?" thinks the schoolboy. "Almost everybody smokes, ministers, doctors, senators, even the President, why can't I?"

This is a question which every teacher must meet fairly and squarely. It is quite true that the tobacco user does not always fall an immediate victim to the deadly nicotine he takes into his system, and may even live to old age if he does not form the habit early in life; it is equally true that the smoker is to be found on every round of the ladder and in every phase of society. Shall we then pronounce tobacco a good thing and urge it upon young people, or passively assent to its use by them?

The teacher who is worthy of her high calling aims to develop character as well as intellect in her pupils. She strives to fit them to live the best lives of which they are capable and to make the most of every power.

She knows that nicotine is a virulent poison, subversive of the physical and mental powers of youth; she knows that reputable business men everywhere are refusing to employ boys who smoke or chew, and because she knows these facts and realizes, as the boy can not, the power of tobacco to clog his life at every turn, the weight of her influence and teachings are uncompromisingly against its use.

THE NATURE OF TOBACCO

Before pupils can study understandingly the effects of tobacco they must know something of its nature and history. What is tobacco? Where does it come from? What are its properties? Why is it raised? These are all pertinent inquiries, and should be studied in detail. They involve geography, botany, chemistry, commerce, manufacturing and economics. Correlate these branches by assigning the work in special topics. In this way all can be covered and discussed in a single lesson or expanded as time allows. One or more pupils, for instance, may study the characteristics of tobacco as a plant, describing leaf, root, stem and blossom by the aid of illustrative drawings; showing its family and the familiar plants it is allied to; telling about its culture, the soil it thrives in, the care it requires; and explaining how it is gathered and prepared for market. Others may show where it is raised, and its effect on the soil; discuss its commercial value; why its culture is more profitable in some sections than others; and what chemical analysis shows it to consist of. Study the common adulterations of manufactured tobacco. Which of these are harmful substances? Why is not pure tobacco always used? Why is pure tobacco often more harmful than its worst adulterations?

Get together all the books and newspaper clippings you can find to aid the class in working up these topics, and have medical dictionaries and encyclopedias available for their help in studying the chemical nature of tobacco. They probably know already that tobacco contains a poison, but it will mean much more to them to find its deadly nature set forth plainly in the best medical works on narcotics.

EFFECTS OF TOBACCO ON THE BODY

The pyramids of Egypt have stood for ages as the type of enduring workmanship. Have the class compare these structures with some of the flimsy buildings going up to-day. How do the materials differ? the quality of work?

Show that we can not expect to have buildings that will last unless good material is used and the work done in a thorough manner. What material shall we use to build the human body? Study with the class the kinds of food which the body needs; then take up the action of tobacco on bodily structure.

Find how tobacco affects the bony framework which supports the body, as to its size and strength. Compare the stature of those who begin to use tobacco early in life, with that of others who have always let it alone, or who did not smoke or chew until they had reached

manhood. Think of reasons why tobacco dwarfs the body.

Have one section of the class review the work of the brain and nerves in their relation to every part of the body. Ask a second division to show how the nervous system should be treated to fit it for the wear and tear of every day life. The rest of the class may consider how far tobacco would fail to answer the requirements of the nervous system. How would it work positive harm? Study the effects of tobacco upon the circulatory and respiratory organs. What is the "smoker's heart?" Show why it is dangerous. Consider how tobacco can injure the mucous membrane of the nose, throat and bronchial tubes.

Set the class to finding how the special senses are exposed to injury from the use of tobacco. Why is the sense of sight particularly liable to suffer? Take up, similarly, the other organs of the body, discussing the action of tobacco upon each. How does the nature of tobacco explain its uniformly injurious action on all the bodily organs and tissues in youth?

Perched on the bare brown branches, the birds in chorus sing,
Till Cupid says they're ready for concerts in the spring.

EFFECTS OF TOBACCO ON PHYSICAL ABILITY

In early times when strong walls about a city were thought necessary to defend it from its enemies, Sparta alone built her cities without walls. Then, if visitors wondered at the daring omission, the King would show his splendid army of freemen and say, "These are Sparta's wall, and every man is a brick."

Tell the story of Thermopylæ to show how effective these Spartan walls were in time of war. Have the class find what sort of training these men had in youth to make them sturdy and brave. How would a cigarette smoker of today fail in trying to take the place of one of these heroes? Why is the use of tobacco forbidden football players and all athletes?

Have some one find what tests are required by railway companies of their employees. How does the color test show whether one smokes cigarettes habitually or not? Name different kinds of work in which either physical strength or skill is necessary. How are cigarettes a bar to success in each?

A Chicago boy confessed that he had just applied for work in ten places and each time he was asked if he smoked cigarettes. Why did his affirmative answer keep him from being employed by any of these men? Name all the ways in which a boy's physical ability is weakened or entirely lost by the use of tobacco.

EFFECTS OF TOBACCO ON MENTAL ABILITY

The School Board of a California town found that the boys in their public schools ranked far below the girls in every study, and investigation showed that ninety per cent. of the boys between the ages of twelve and fifteen smoked cigarettes. The same condition exists in other towns, and always with like results.

Why are such boys not so bright as girls? Why do they drop behind in their school work?

Review with your class the action of tobacco upon the nervous system until they see why young people can not use this narcotic without a distinct loss in mental power. How does this loss show itself in school? in business? in the every day life of the young smoker? Call for a list of the different kinds of work which can not be well done unless one has a clear head and the ability to think quickly and correctly. Have the class ascertain by actual experiment how many employers they can find who are willing to give any kind of brain work to boys who are habitual cigarette smokers. What per cent. are unwilling? Why should this habit make any difference?

EFFECTS OF TOBACCO ON CHARACTER

Bring out the fact that, in order to be of real service to us, the brain must rightly interpret whatever affects the nerves. An astronomer once thought he had found a new spot on the

sun, when the truth of the matter was that a speck of dust had fallen on the lens of his telescope. Show that tobacco deceives in a similar way. It gives a feeling of pleasure or ability when such a feeling does not exist. It can make a boy feel manly and courageous when he is really a boastful coward; it can make him willing to lie and steal when he otherwise would not think of such a thing; it makes him wasteful of his money, at the same time that it is ruining his money-making ability; it renders him indifferent to his personal appearance, slovenly in his dress and manners, coarse in language, and selfish towards the feelings of others.

Bring out all these ways in which the morals of a youth may be lowered by the persistent use of tobacco. Illustrate each by incidents from real life, impersonal of course, and explain to the class that these effects are due to the poisonous action of the nicotine it contains; that this narcotic has the power to so blunt and injure the nerves that these can no longer convey truthful impressions to the brain or incite the individual to right action.

Tell the story of the passenger in a sailing vessel who cut a hole in the ship's side. When remonstrated with he calmly answered: "What difference does it make to you? The hole is under my own berth."

Call for instances showing that the effects of tobacco are never confined to the user. Others must breathe a polluted air and run the risk of soiled clothing whenever any one smokes or chews. Streets, offices, public halls, and often the home itself are rendered indescribably filthy in order that tobacco users may gratify a depraved appetite. Worse than all, the inheritance of a sickly body and feeble intellect are handed down to innocent children because one or both parents have been habitual users of this narcotic. This last fact should not be omitted or lost sight of in any study of the effects of tobacco. Some day the majority of your pupils will have boys and girls of their own and it rests with them, as parents of the future, to transmit health and energy and mental power to their descendants, instead of burdening them with the sins of their fathers.

AUTHORITATIVE QUOTATIONS

TOBACCO DEMORALIZES THE NERVOUS SYSTEM

Smoking has a bad effect upon the nervous system. The effect may appear to be soothing or even stimulating for the time, but it ends by making the person irritable. Any boy who smokes before the age of twenty-one runs the risk of growing up with a poor brain and nervous system.— H. F. Hewes, M.D., Harvard University.

TOBACCO CREATES AN APPETITE FOR ITSELF

There are enough authorities showing the irreparable injury of tobacco to the brain, as well as to the body, to fill a volume. Besides the weakening effect on the brain and nerves themselves, there comes a loud call from this diseased condition for a repetition of the dose, and the system continually grows weaker until at last there is no vitality to respond.— C. H. Shepard, M.D., Brooklyn.

NICOTINE WEAKENS THE STRUCTURE OF THE HEART

What is of most importance in connection with dilated heart is the direct toxic action of nicotine on the heart muscle, similar to that produced by alcohol, if present in sufficient amount.— *London Lancet.*

TOBACCO DERANGES THE HEART'S ACTION

The pulse of every habitual user of tobacco will show irregularities in the heart's action. Tobacco users frequently suffer with palpitation, angina pectoris and other symptoms of derangement of this organ. About one-fourth of those who smoke have narcotism of the heart.

W. H. Riley, M.D., Supt. Colo. Sanitarium.

TOBACCO HINDERS ALL DEVELOPMENT

The constant use of tobacco in any form will produce functional derangement of the digestive, circulatory, and nervous systems, producing headache, confusion of intellect, loss of memory, dullness, stupor and indisposition to muscular or mental labor. No man who becomes a slave to tobacco ever has reached his best, mentally, morally or physically, or ever will.

C. H. St. John, Ph.B., D.D., M.D.

TOBACCO INJURES THE SIGHT

The use of tobacco is a frequent cause of color-blindness. The irritating action of tobacco smoke causes haziness, and sometimes produces a total loss of sight. Tobacco sometimes produces a wasting away of the optic nerve, and this leads, sooner or later, to partial or total blindness.—W. E. Baldwin, M.D.

CIGARETTE SMOKING PERVERTS MORALS

Cigarette smoking first blunts the whole moral nature. It has an appalling effect upon the physical system as well. I have seen bright boys turned into dunces, and straightforward, honest boys made into miserable cowards by it.

A. C. Clinton, M.D., San Francisco.

TOBACCO INTERFERES WITH NEARLY EVERY FUNCTION OF THE BODY

The use of tobacco by youth can never be regarded as moderate. Its effects, even when but little indulged in are those which characterize excess in adults. The depressing effect of tobacco upon growth by diminishing the forces concerned in tissue changes, its effect upon the heart and pulsation, the disturbance of muscular, co-ordinate power, of ability to

concentrate the mind upon study, the dyspeptic troubles, impairment of vision and headache are conceded by most observers and clearly demonstrated by many. — A. C. Gorgus, M.D., Medical Inspector U. S. N.

TOBACCO LESSENS WORKING ABILITY

While tobacco is injurious to every one it is far more harmful to those who are growing. A boy who uses tobacco can never have the strength of body or the vigor of mind he would have had except for its use. Boys and young men entering the employ of a great business house or a corporation where their success depends upon strength, alertness, skill and accuracy, as well as integrity and industry, would surely reach a much higher success if they abstained totally from all narcotics.

Winfield S. Hall, Ph.D., M.D.,
Northwestern Univ. Med. School.

O, March that blusters, and March that blows,
What color under your footsteps glows;
Beauty you summon from winter's snows,
And you are the pathway that leads to the rose.

Celia Thaxter.

AN AWFUL RISK

Diphtheria has been epidemic in the mission, and little Freddie was repeatedly warned by his mother that he must not play near the house that had the blue placard on it, for fear he would contract the disease and die. Freddie became thoroughly imbued with the idea that diphtheria was about the most terrible thing that could happen to a small boy.

The other day he ran away from home, and when his mother finally found him she informed him that he was going to get whipped when he got home.

"How are you going to whip me, mamma?" he inquired dolefully.

"I am going to spank you with the hair brush."

After meditating some little time he said:

"Mamma, I want to talk to you."

"I don't want to talk to you, you bad boy, I'm going to whip you."

There was silence for a few minutes, and Freddie repeated very pleadingly:

"Mamma, I want to talk to you."

"Well, what do you want to say?"

"Well—mamma," he sobbed, "once there was—a little boy—and—and—and his mother spanked him with the hair brush—and—and it gave him diphtheria."

The mother felt that she could not run any such terrible risk—and Freddie escaped.—*San Francisco Post.*

POST OFFICE BARS CIGARETTES

At a conference of the Chicago post office authorities it was decided hereafter to employ no boy who smokes cigarettes or who is known to have once been addicted to the habit.

Heretofore, there has been a rule in force that boys employed by the office could not smoke while working, but believing that smoking has a demoralizing effect, and because of the need of the most intelligent and active boys, it is thought wise to make closer restrictions.

An examination is soon to be held, when seven hundred youths will enter into competition for positions in the post office, and the new order will have no small effect upon so large a number of applicants.

The clause relating to cigarettes says: "No small boys will be allowed to participate in the examination, since only the best equipped boys mentally and physically are wanted in this service, and under no circumstances will a boy who smokes cigarettes be employed." The service referred to is that of special delivery messenger, for which appointments are made from this examination. — *Pacific Ensign.*

The *Youth's Companion* tells of a young man who failed to pass an examination for a government position. He had influence in the way of a senator who took him to Secretary Long to see if anything could be done to re-rate his grades and get him in. "It's no use," said Secretary Long, "that young man has failed three times. Look at his fingers; that yellow stain indicates that he is a cigarette smoker and as such would never do the work required of him."

THE BOY AND THE CIGARETTE

It is possible that the refusal of merchants, manufacturers, and professional men to employ boys addicted to the cigarette habit will do more to check the evil than all the laws ever passed or planned. When a boy knows that his future chance to earn a livelihood depends on his quitting the ill-smelling cigarette, the knowledge will doubtless have more effect on him than a dozen parents' or pedagogues' lectures on the subject. The beauty of the thing is that no manner of deceit will avail, for the cigarette-smoking boy carries the literal sign manual of his vice on his fingers. A Chicago boy confessed last week that out of ten places to which he had applied for work the head of not one had neglected to ask him if he smoked cigarettes. In a number of instances he was made to show his fingers. — *Chicago Tribune.*

"Already the feet of the winter fly,
And the pulse of the earth begins to leap,
Waking up from her frozen sleep,
And knowing the beautiful spring is nigh."

QUEEN VICTORIA

A TRULY successful ruler must have the quality of self-abnegation. The well-being of his people, not personal glory or selfish emolument, must stand first.

Few of the personal governments of men have been successful, because self-abnegation is not natural to man. The pages of history are blackened by the stories of bloody wars in which thousands have perished to gratify the selfish ambitions of monarchs.

Self-abnegation is an essential characteristic of motherhood. We women lay down at the cradle our youth, our beauty, our love of ease, tastes and ambitions, a glad, willing tribute to the little bit of humanity there. We can not help it.

You say such instinctive self-abnegation is God's providence for the child. Was it not God's providence for Great Britain and the world she has influenced that this most womanly of women, this most madonna-hearted of mothers, Alexandrina Victoria came to the throne of England at just the time she did? The moral tone of the courts that preceded her reign had shocked the awakening conscience of England, at that time torn with the contentions of great political parties. "Social discontent prevailed everywhere," says a historian of that period. The Duke of Wellington thought the young Queen might purify the atmosphere of the court, but "the Tories will never have any chance with a young woman as sovereign," he said, "for I have no small talk and Peel has no manners." It evidently did not occur to him to think that a woman could be capable of as sound a constitutional policy, and able to show as small regard for personal predilections as a man, but he learned better as he watched Queen Victoria's reign.

The fear that the advice of frivolous men in power would warp her judgment was soon dissipated by the discovery that this young woman had strong, clear sense enough of her own not to be absolutely dependent upon counsel.

Others have spoken of the Queen's ideal domestic life, of her character as a loving, loyal wife and devoted mother, but the side of her remarkable career that needs presenting as well, is that very womanliness and motherliness expressed in public affairs. It is these qualities shown in a broad arena which have made the life now closed most regal. The true woman and loving mother is a queen in her home, but her care concerning the influences that may shape the lives of her sons and daughters is not alone confined within the four walls that may encompass that home. She prays for and works for such administration of outside affairs as will constitute safe social conditions for her children.

The maternal instinct of preservation of the child from moral contamination is one of the great conservators of civilization. The world is progressing in its realization of the value and need of this quality of motherliness in public affairs. What a loss it would have been to Britain and to the world if this grandchild of George III. had been, instead of that sweet young girl, a male heir like his two sons who reigned before Victoria! What a lofty example of pure domestic life, of true womanliness in the administration of the home and of the affairs of a great nation the world would have missed!

The life and reign of the dead Queen will be forever a refutation of the false notion that woman is incapable of comprehending public affairs and of acting wisely in their administration, and that if she attempts it it will be at the sacrifice of home qualities.

Queen Victoria was a statesman in the generic sense of that term. She not only loved her people but knew them. She understood her times. Familiar with every page of history and comprehending its philosophy, she knew that oppression has been and is always self-destructive. Thus from knowledge as well as from instinct she was a liberal ruler. While her predecessors had often dismissed their ministers at will, Victoria is said to have been the first really constitutional monarch England has ever had. It means much for the motherland that the new King, Edward VII., promises to walk in the footsteps of his mother, and declares that he too is resolved to act as a constitutional monarch.

Although ancestors of mine came to this country on the Mayflower, because of the ecclesiastical tyranny of James I., although there is running in my veins the blood of men who from the pulpits of this section of Massachusetts roused the people to the war of the Revolution and fought in its battles, nevertheless my heart throbs with sympathy at the sight of these two flags side by side on the walls of this church, the one the Union Jack, and the other the Stars and Stripes, and both draped with crape.

Both nations here represented by these emblems are most deeply bereaved. Our mother country has lost a great and wise ruler and we a real friend who proved herself such in our hour of sore need.

In 1861 our beloved republic was threatened with dismemberment, in order that a new nation might come into existence founded on that sum of all villainies, human chattel slavery. Lord Russell's letters from this country to London, sided with the South, and Lord Palmerston, at a public dinner, sneered at our first Bull Run defeat. Then trouble arose between England and the United States over the Mason and Slidell affair, and we might have had two wars at once on our hands, one within our own

borders and the other with England, had not Queen Victoria, with her own pen, so modified the letter of her minister to our government as to render it pacific instead of inflammatory.

God bless the memory of this glorious Queen! We shall ever love and revere her name. She had the qualities of truest statesmanship. She knew that the hearthstone is the cornerstone of national strength, that the home where one man is loyal to one true wife, the mother of his children and sharer of his joys and sorrows, is a domestic condition which differentiates a civilized people from savages; hence no sin against such home conditions, no violation of the purity of individual or domestic life was sanctioned by her court. She not only represented in her own life, but ever exacted from others, that virtue which is the strength of a nation.

King Edward VII.

The daughter of a long line of kings, this regal sovereign of Great Britain and Ireland and Empress of India knew that hers were but passing titles, that she must soon leave all pomp and pageantry of earthly royalty and go to give an account of her stewardship to the King of Kings. With this fact ever before her she has led the truest of all lives, that of a follower of the glorified Nazarene, whose "Well done, good and faithful servant!" must have been more welcome than all the many acclaims she has heard during her long earthly reign.

MARY H. HUNT.

From an address delivered Jan. 27, 1901, in Pilgrim Congregational Church, Boston, Mass.

MARCH WINDS

Blow, blow, March winds, blow!
Blow us April if you please.
Blow away the cold, white snow,
Blow the leaves out on the trees.

Blow the ice from off the brooks,
Set their merry water free.
Blow dead leaves from woodsy nooks,
Show the violets to me.

Do all this; t'will be but play;
Then — please to blow yourself away!

— *St. Nicholas.*

A PHYSICIAN'S VIEW OF ALCOHOL

THE medical profession is by no means unanimous in considering Professor Atwater's experiments as conclusively demonstrating alcohol to be a food. It is true that many physicians still accept the old teaching that alcohol is a panacea for all ills, and in a blind, unreasoning manner prescribe it as a food, a drink, a sleeping potion, an anodyne, a narcotic, a stimulant, a tonic, a calorifacient, and a febrifuge. By such professional men, especially if they have themselves acquired the drink habit, the experiments of Professor Atwater are considered conclusive, although but few of them have ever studied the methods by which he obtained his deductions. To those physicians, however, who have investigated the subject carefully and prayerfully, because of the wide-reaching injury to youth which misjudgment might inflict, Professor Atwater's reasoning proves entirely fallacious.

Were we to accept it as proved that alcohol is, to a certain extent, consumed within the human body and converted into heat and force, this does not make of it a food in that practical sense in which we expect children to accept the rest of the teaching in their physiologies. It is no more, for this reason, a food than are opium, chloral, cocaine, cannabis indica, tobacco and other narcotic poisons of that class; while, like them, it is capable of inducing a series of wide-reaching injuries both to health and morals. In my opinion alcohol is in no sense a food. It is not a true stimulant nor is it a tonic. It is a narcotic irritant poison, the narcotic power of which is too feeble and too dependent upon personal idiosyncrasies to render its administration reliable, either to relieve pain or to cause sleep. Thus, the same dose of alcohol which makes one patient partially insensible to the knife renders the anguish of another more acute and uncontrollable. The amount required to cause sleep in one as often produces restless wakefulness in another. It is in no sense a tonic, as it invariably depresses and enervates. Nerve tone is replaced by nervous

irritability; true muscular energy is lost and its place taken by the delusive appearance of strength which a partial anæsthesia pruduces. The direct action of alcohol upon the stomach secretion is that of an irritant, and as such it increases temporarily the flow of gastric juice like the condiments mustard and pepper. It produces, however, as do these condiments, gastric irritation, and also an injurious influence upon digestion peculiar to itself. It very commonly nauseates and increases anorexia except in those cases habituated either by heredity or personal acquirement to its employment. It is in no way a true stimulant. The supposition that it is such is largely based upon the fact that in a certain number of cases moderate but concentrated doses of alcohol will, through irritation of those terminal filaments of the vagus which are supplied to the stomach, act reflexly upon those supplied to the heart and produce a transient bounding of the pulse. More often, however, unless the patient has become tolerant by its habitual employment, this irritation of the stomach mucous membrane is productive immediately of nausea and enfeebled and rapid heart action, only partially recovered by emesis. It increases the depression and retards reaction.

In a large surgical hospital, and extensive general and consulting practice, I have learned for a number of years to shun its administration utterly, finding it invariably injurious in all conditions of disease and injury, never acting as a food but always as a poison. Thus, in four hundred operations performed by me from June 1, 1898, to June 1, 1899, of which by far the greater number were of the gravest nature, there was a mortality of but one per cent; a most striking contrast to the results obtained with the same class of cases by equally skilful operators who employed alcoholic medication. The same was found true of my typhoid and other fever cases in which, during the earlier days of my practice, I was deluded into supposing alcohol to be a food and a tonic.

I believe Professor Atwater's conclusions to have been biased by preconceived ideas, and that his opinions should have no place in influencing the temperance teaching in our public schools. I earnestly hope, therefore, that no alteration will be made in the present teaching concerning the injurious action of alcohol as set forth in our indorsed school physiologies.

Evan O'Neill Kane, M.D.

Kane, Pa.

"O, violets hiding in the green,
O, violets sweet and shy
You have the sweetness of the earth,
The beauty of the sky,
No blossom fairer blows,
Till summer brings her rose."

BOOK NOTICES

Geography in the Elementary Schools

THIS pamphlet by W. T. Harris, United States Commissioner of Education, gives in a nutshell the relation of geography to other branches in elementary school work. First of all it cultivates the child's power of observation and helps him to substitute thought for fancy, but its greatest advantage lies in the fact that it is a many-sided study. The child's interests are in every direction but he is unable to concentrate his mind long on any one. Because geography is a conglomerate of sciences, it appeals to each of these interests in turn and helps to bind them into one harmonious whole. The busy teacher, who is trying to correlate to best advantage the many subjects included in the course, will find Dr. Harris' suggestions especially helpful.

The Childhood of Ji-Shib the Ojibwa, by Albert Ernest Jenks, Ph.D. Published by *The American Thresherman*, Madison, Wisconsin. Price $1.00.

A charming little book of Indian life and thought, illustrated by sixty-four pen sketches. Dr. Jenks gives in prose what Longfellow has so admirably done in poetry, the free, outdoor life of an Indian boy, with its picturesque setting of lake and forest, and its intimate knowledge of birds and animals. The customs of the Ojibwas are faithfully preserved and presented from the Indian's own standpoint. We see the poetry and the stern hardships of his existence as he saw them, and read this chapter from the earlier history of our country without prejudice. The book is admirably adapted for supplementary reading in primary classes.

Condensed Guide to the Brussels Charities, edited by Edward Belleroche, formerly Hon. Secretary of the Belgian Benevolent Society of London. Street beggars are so much more common in Europe than in our own country that the traveler feels almost obliged to give alms to some of them. M. Belleroche's *Guide* is published to warn against such mistaken kindness, at least without careful investigation, and to refer the charitably minded to those organizations whose special mission it is to ascertain where help is really needed. Such work is worthy of all assistance and we cordially commend its aim. Attention is also called in the pamphlet to the need of vigorous temperance work in Belgium, notwithstanding the temperance societies and leagues which already exist. Leading women, among them the wife of the Belgian Minister of State and Senator, are interesting themselves in the matter, and there is hope that the children will soon receive necessary instruction in this most vital of subjects.

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PHYSIOLOGY TOPICS FOR MARCH

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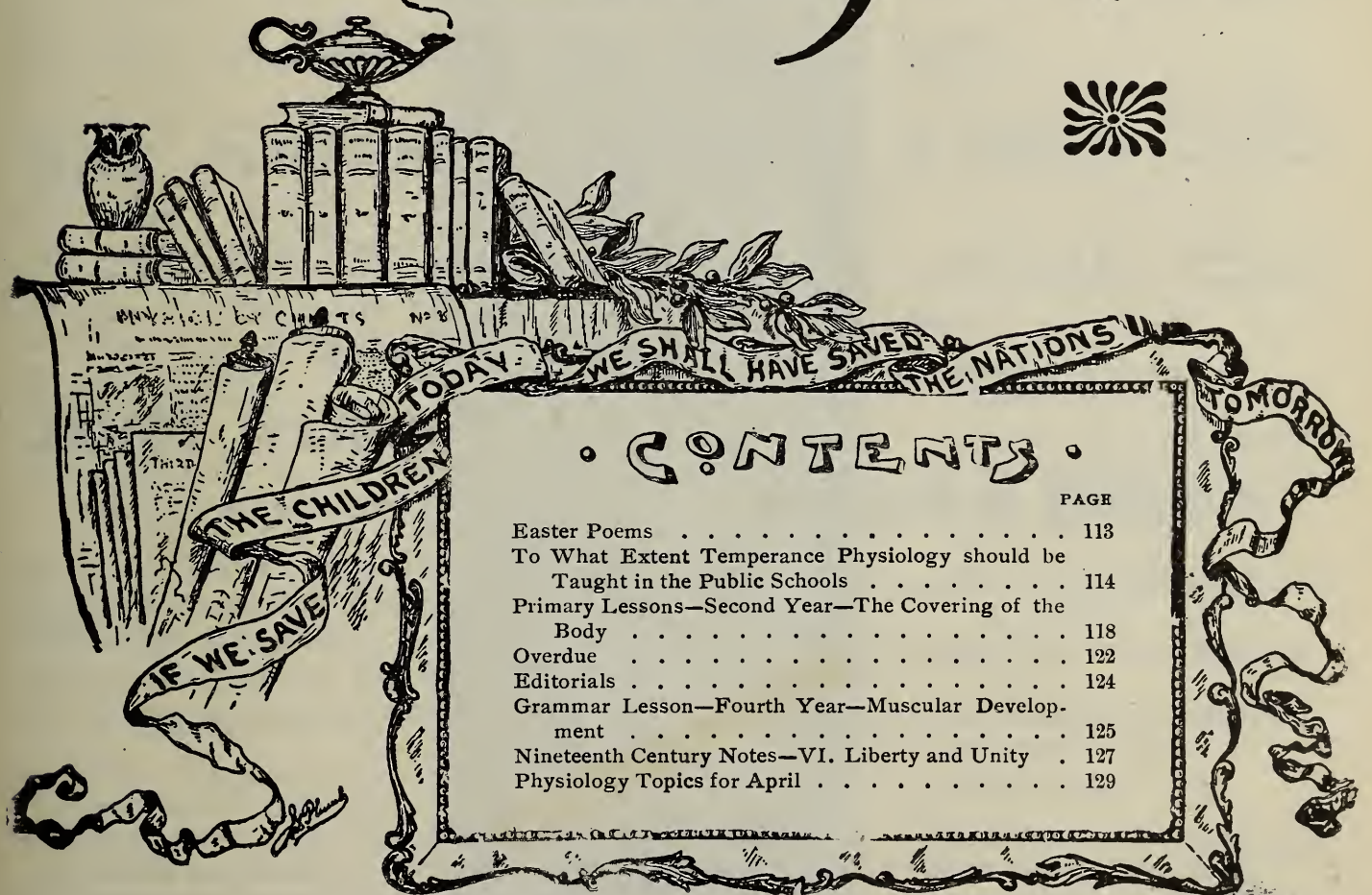

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VOL. X. No. 8.
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THE EASTER MESSAGE

When the maple twigs are blushing, and the birch-bud shyly swells,
And the hylas pipe in chorus like a string of silver bells;
When the first ecstatic robin, truant from his wiser kin,
In the gray and dripping orchard tunes his lusty violin,
Something steals upon my spirit — something sweet I can not name —
Like a heart-beat faintly pulsing from the birth-world whence I came.

Such a mystical, sweet promise, when the wind blows from the south,
And a bird is in the orchard with God's greeting in his mouth!
Have I fainted, have I doubted, in the days that are gone by?
Have I said, "There is no rising unto mortals when they die?"
It is past, that blind self-wounding! I have heard the robin sing,
I have caught the Easter message in the first breath of the spring.

—*Harper's Bazar.*

"My name is April, sir; and I
Often laugh, as often cry."

SPRING

The Spring reveals herself in secret only,
Through hidden signs we guess her mystic power.
The fields are bare, the woodlands wild and lonely,
But, lo! beneath the earth she hides the flower.

HOPE

From a Copley Print, copyright 1899, by Curtis & Cameron.

The willows quicken at the river's brim,
The eager alder breaks her tiny buds,
The upland hills are wrapt in hazes dim,
And sweet, impulsive life has stirred the woods.—DORA REED GOODALE.

A CORONATION

From earthy coverts where I slept
The sunlight summoned me;
To root and bole and bough I crept,
And bloomed on every tree.

In windless places warm with sun,
Despite the lingering snow,
To speak my monarchy begun
I bade the violets blow.

Then, while I wavered in the stress
That wintry winds had shown,
The bluebird's sweet persuasiveness
Confirmed me on my throne.

R. G. WELSH.

"Music is in all growing things;
Earth's silence lives, and throbs, and sings."

THE FLOCKS OF SPRING

When winter is done, and April's dawning
Shatters the dark of the year,
And the rain-fed rivulet under the bridge
Again runs clear,

And the shepherd sun comes o'er the hill
To let out the flocks of spring,
With laughter and light in the pastures of air
The flocks take wing.

They scatter on every lingering wind —
The perfume, and the bee,
And the whispers of the jostling grass,
Glad to be free;

The minstrelsy of the shining pools,
The dancing troops of the hours,
And over the sod in a sudden rapture
Flame the flowers.

CHAS. G. D. ROBERTS in *Munsey.*

AN APRIL DAY

We knew it would rain, for all the morn
A spirit on slender ropes of mist
Was lowering his golden buckets down
Into the vapory amethyst,

On marshes and swamps and dismal fens,
Scooping the dew that lay on the flowers,
Dipping the jewels out of the sea,
To sprinkle them over the land in showers.

We knew it would rain, for the poplars showed
The white of their leaves, the amber grain
Shrank in the wind—and the lightning now
Is tangled in tremulous skeins of rain!

—Thomas Bailey Aldrich.

TO WHAT EXTENT TEMPERANCE PHYSIOLOGY SHOULD BE TAUGHT IN THE PUBLIC SCHOOLS

DANIEL WEBSTER, in one of his famous speeches, said:

"Our expectation of the duration of our system of government rests on the trust that by the diffusion of knowledge and virtuous sentiments the political fabric may be secure, as well against open violence and overthrow as against the slow but sure undermining of lawlessness." "It is the undoubted right and bounden duty of government to provide for the instruction of all youth." "For the purpose of public instruction we hold every man subject to taxation in proportion to his property. We regard this as a wise and liberal system of police for the safety of property, life, and public peace."

During the eighty-one years since these fundamental truths were uttered, and especially since the abolition of slavery in the South, they have become the settled policy of our entire nation, and the course of study in our public schools has been widened to include such studies as individual and public good have called for. The branch to which this article refers has been added for the following reasons:

WHY PHYSIOLOGICAL TEMPERANCE IS A MANDATORY STUDY IN THE UNITED STATES

The use of alcoholic drinks and other narcotics is found to be a prolific cause of crime, poverty, misery, madness, progressive degeneration, a menace to individual well-being and consequently to the state. Furthermore, universal misapprehension as to the laws of health, especially those which relate to the dangerous character and consequent effects of alcoholic drinks, is seen to be a cause that has led to the destructive use of these beverages.

Here, then, is a clear case for that diffusion of knowledge and virtuous sentiments on which Webster says the perpetuity of our republic rests. The modern statesman as well as philanthropists realize that a republic can not abolish an evil, no matter how dangerous it may be to the public welfare, until a majority of the people want it prohibited. It has no power with which it can compel majorities, for majorities make the laws. In that sense it can not go in advance of public opinion. But a government of the people can provide for such education of public opinion as will lead majorities voluntarily to banish a wrong that imperils the individual and society, and it is its duty to do so. Therefore Congress, and the legislatures of every state in the Union but one (and that one soon will), have enacted laws making the nature and effects of alcoholic drinks and other narcotics, in connection with physiology and hygiene, a mandatory public school study.

WHY FOR ALL PUPILS

Nearly all the states, and Congress for all schools under Federal control, require this branch to be taught and studied by "all pupils in all schools." The reason for this is self-evident. It is the object of this temperance education legislation, which is now national, to ensure that the schools shall teach all the future men and women of this country, with other laws of health, the dangerous character and effects of alcoholic drinks and other narcotics, and to provide that such instruction, by beginning before appetite for these substances is formed, shall be in reality preventive.

WHEN AND WHERE THIS STUDY MUST BE PURSUED IN TIME TO SHAPE HABITS

The latest report of Dr. W. T. Harris, National Commissioner of Education, states that in 1899 the average time during which children in this country remained in school was not quite five years (4.96). The average age in the North Atlantic states was a little less than six and three-quarters years (6.70).* If six and three-quarters years is the highest average, then a considerable proportion must get less than six and three-quarters years, for a goodly number of pupils pass up through the grades above the sixth, and some take the entire thirteen years' course. Those who go into the seventh and higher grades would raise the average above six and three-quarters years if a larger proportion of the children did not have less than this number of years in school. Therefore, according to Dr. Harris' figures, if the study is excluded from the lower grades many children will fail to get any instruction in this subject, because they will have dropped out of school before they reach it.

The fact that compulsory attendance laws in

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* Page XIV. of the Report of the Commissioner of Education, 1898-'99.

some of the North Atlantic states may ensure that a larger number of pupils reach grades higher than Dr. Harris' figures imply would not ensure that wrong hygienic habits, including cigarette-smoking, cider and beer tippling, may not have been formed before the sixth or seventh years are reached. The task in the case of such pupils would become the difficult, sometimes impossible, one of reformation rather than the hopeful work of prevention through education.

CHILDREN IN THE PRIMARY GRADES

This instruction is needed in the primary years, even for those who remain longest in school, to guide constantly forming habits and to create aversion for wrong habits during these most impressive years of child life. "Most of the cigarette smokers in my schools," writes a superintendent, "are in the fourth and fifth years." Faithful instruction through the primary grades, and continued in succeeding years might have prevented this state of affairs.

Even in the states with the highest educational ranking some children leave school at the expiration of the third year. If instruction in physiological temperance is excluded from the first three primary years this class will receive no instruction at all on that subject.

Such children are often from homes where there is little either of temperance teaching or of example. Children of the immigrant are often among these. To deprive them of this school instruction is a wrong to them and a menace to the public. We tempt with the open saloon these people who have come to America as to the land of hope. In addition, to shut off from their children in these primary years the instruction of the school against what the saloon has to sell would be a double wrong which would come back to smite us as these children become a part of this government of the people. To take oral instruction in temperance physiology out of the three primary public school years, where of course instruction must be oral, is to provide for the perpetuity of a slum class to be the slaves of alcohol, narcotics and kindred vices, and a consequent peril to society.

THE FOURTH YEAR PUPIL

Throughout the country regular text-book instruction in other studies, like arithmetic and geography, ordinarily begins in the fourth year of school life. Why should it not in this study? There are important truths to be learned on this subject which relate to the pupil's physical, mental and moral development. The fourth year pupil comes up from the primary with a sense of growth that resents what he terms baby methods. He wants a book because older pupils have a book for a study that means anything, and he should have a book. He is old enough to take in by the eye gate what he reads in the text, as well as through the ear gate what the teacher says. Neither he nor the fifth or sixth year pupil is very responsive to mere exhortation. They do not like to be preached at. Truth put into language they can understand, found in their text-books, illustrated by the teacher may be impressed by her with permanent moral effect because they can understand the reason for it. This is a critical year for the child, when careful instruction that respects his consciousness of his own development may save him from temptations which closely beset him at this age. No subject which the school teaches is of more importance to the pupil than that of modern hygiene, including the nature and effects of alcohol and other narcotics, because it touches life, health and constantly forming habits. If we were sure that all the children would remain in school up to and during the higher school years, and that before that time they would form no unhygienic habits, including those that relate to alcohol and tobacco; that their minds on these subjects would remain a perfect blank until the time we were ready to give the instruction; that they would possess no inherited tendencies which should be warned against, or be surrounded by no temptations, the question of the time for the introduction of this study would be unimportant. But with life and its environments what they are to-day, to take graded text-book instruction on this topic from pupils of the fourth year is to do them an irreparable wrong.

METHODS ARE LEFT TO THE TEACHER

A text-book in the hands of the pupil where other branches are thus studied is only *one* source of information, and does not, as has been claimed, limit the teacher to any special method, inductive, deductive, objective, illustrative or experimental. She may teach by any method she chooses. The book helps a poor teacher and her pupils, especially in a subject in which she has had no training, as is often the case in this one. The good teacher shows the pupil how to use any book in such a way as to get the best from it. Thorough, systematic study of this branch in grades above the primary calls for text-books in the hands of the pupils.

Keep definite text-book instruction on this subject out of the public schools until some of the pupils have left school, and until many of those who go into the upper grades have a cigarette, cider or beer-drinking liking already established, and the saloon will have as its allies, to vote for and support it, those who were deprived of this instruction. No one who would save the children from this fate and the state from its consequences, or who believes

with Webster that it is "the right and bounden duty of government to provide for the instruction of all youth" on matters essential to personal well-being and to good citizenship, could consent to any neglect of the study in this grade, or to its being left to the haphazard methods of so-called incidental teaching.

THE FIFTH AND SIXTH YEARS

In these days of child study we have learned that a method that does not take into consideration those moods of the child which are due to his progressive development, and adapt itself to them will fail of the best results. The child is ever looking to the future with an expectant pride in the more advanced things he is to do and learn, and to the year and its lessons just passed with a kind of contempt, as to a period of infantile studies and immaturity. To do as the big boys and girls do, and to study what they study in the higher classes is the attractive goal for children as they emerge from the fourth year.

The simple lessons and book that interested and taught the fourth year pupil to obey the laws of hygiene he could understand will not hold him another year, if he stays in school, unless those lessons are enlarged and presented in a form adapted to his increased intelligence. Give the child that reaches the fifth and sixth years a larger treatment of the subject, more facts concerning the structure of his body in which he is always interested, and the subject will lose none of its freshness. He can at this age understand more clearly the laws that are written in his own body, laws which must be obeyed to secure a good mental and moral as well as a sound physical development and that success in life which every child craves. Let the appeal come through the intelligence to the reason and moral nature, and the study will not pall on pupils of this age, but will make that warning and restraining impression which truth can be relied upon to make when pressed home in this way. A good text-book, adapted to his development, in the hands of the pupil as one help in his study is an essential in this branch as well as in others.

"He is not here, but is risen."
"From his tomb the imprisoned God, like the strong sunrise, broke away."

Three or four lessons a week at most, for ten weeks each year during the fifth and sixth years, will cover so much of the subject as is adapted to these grades. About this amount of matter is ordinarily covered in an elementary text-book on this subject.

If five years are a little more than the average school attendance in this country as a whole, and if six and three-quarters years are a little more than the attendance in the older and more advanced states, to neglect to have this study pursued to the best possible advantage in the fifth and sixth years is to fail to continue the warning instruction when temptations thicken about the child; it is also to relegate the future majorities of our country to that ignorance concerning the laws of health, including the nature and effects of alcoholic drinks, which will give the saloon the right of way in the future as it destroys our people and their government.

SEVENTH AND EIGHTH YEARS AND THE HIGH SCHOOL

As these years are reached, pupils begin to leave school in large numbers to join the industrial ranks. Compared with those who enter the primary classes, the number who go on through the seventh and eighth years is small. But the more education a man or woman has received, other things being equal, the more influence for good or bad they will subsequently be able to exert; hence a continuance of this progressive study is urgently needed to enable the pupil to resist the luring temptations that press hard upon him during these years, and to equip these comparatively few scholars to go out into life strong in intelligent conviction for a future of abstinence for themselves and for their countrymen from enslaving alcoholic drinks and other narcotics.

Where there are nine years below the high school, pupils who have successfully passed tests or examinations in this study from grade to grade can well drop it in the ninth year, leaving it to be taken up and completed during the first

year of the high school where a full and more technical treatment can be easily mastered.

TOO MUCH TIME OR STUDY IS NOT ASKED

The impression that this scheme of study asks for too much attention is dispelled when an estimate is made of the time it really calls for.

The maximum of four text-book lessons per week for ten weeks per year, from the beginning of the fourth school year through the first year of the high school, makes only two hundred and forty lessons in all, distributed through six years, and these lessons are in the whole subject of physiology and hygiene, with only enough temperance matter to cover that portion of the subject.

But there is too much temperance matter the critics are saying. In the indorsed manuals of instruction for high schools the physiology and general hygiene occupies all the text except twenty pages, and four-fifths of all the matter in the books for the grades below the high school. Twenty pages in high school books and one-fifth of the space in manuals for the lower grades, devoted to the nature and effects of alcoholic drinks and narcotics, is barely enough to cover these important facts of the study. Whoever objects to such amount either does not want this subject taught at all, or has given no study to the question of how much truth should be presented to correct popular fallacies and to present such a progressive body of facts from year to year as will make the pupil intelligent on this question.

"So hushed the brooding air,
I could hear the sweep of an angel's wings
If one should earthward fare."

WHY DIFFUSE THE SUBJECT THROUGH THE WHOLE SCHOOL COURSE

We have shown that to reach all classes, and thus to pre-empt all the future men and women of this country for an intelligent sobriety, and to guide them to the formation of right habits before wrong ones get the right of way, this study must not only begin in the primary classes but continue as a progressive branch throughout the grades; that such a scheme takes only a reasonable amount of time in the school course; and that when properly graded it is not a repetition but the presentation of fresh matter in a progressively developing subject.

TEXT-BOOKS

"Why are you so insistent upon text-books in the hands of pupils?" is asked. Because, as we have shown, books rightly used as one source of information are essential to the success of any study, especially when teachers have had no special training as to facts to be taught or to methods of teaching these facts. If the diffusion of the truths contained in geography would prevent the formation of an appetite that supports a great moneyed interest, the friends of geography would have to watch insistently lest text-books on geography should be taken out or left out of the schools.

MARY H. HUNT.

SPRING CHIMES

Give spring a welcome,
Ring, bells, ring,
Ring out a welcome to the spring!

The birds are singing, west winds blow,
White fleecy cloudlets come and go;
The sun is shining, sparkling rain
Beats on the lattice window-pane;
Daffodil starry buds unfold,
Touched by March sunshine into gold.

In sheltered corners, dewy wet,
Blooms the sweet-scented violet;
The graceful snowdrop spring foretells,
As wanton breezes shake its bells.

Spring, summer's handmaid comes apace,
With tear-stained April's sunny face.
All hail! to April,
Ring, bells, ring,
A chime of welcome
To the spring!

—ROSE A. LEA.

THE COVERING OF THE BODY

"THE child's mind," says a witty French writer, "is like a bottle with a small neck. You may pour as much as you please, but only a little will enter at a time."

This is one reason why lessons in hygiene should be given in all primary and intermediate grades. It will not do to omit this teaching until the child is mature enough to understand the whole subject, for these years are the habit-forming period of his life. If he does not learn thus early to use his eyes and ears, to love personal neatness, and to control his appetites, the chances are that wrong habits will be formed to be a drag upon all his later life. Work with children must be given "line upon line, precept upon precept," ever varying yet never omitted, in order to secure the best results.

No subject is more fascinating to the child than the study of his own body, especially when taken up in connection with other forms of animal life which he knows and loves. Furthermore, in no better way can he be taught habits of right living than by noticing the care taken by nearly all animals to keep themselves clean, to eat and drink only what agrees with them, and to live regularly and happily.

(1)

THE APPEARANCE OF THE SKIN

The topic developed for this month's work in primary classes may either follow or precede lessons on the sense of touch. In either case, however, it should not be taken up until the external parts of the body have been studied as a whole.

Children will be quick to point out differences between the head, arms, legs and trunk, but they will not so easily find out how these parts resemble one another. Give the little ones a chance to use their own powers of observation, before showing them that the whole surface of the body has the same kind of covering which fits it perfectly in every part.

Call their attention to the color of the skin. Is this the same in all people? Show colored pictures of the various race types, most of which will already be familiar to children living in large cities, and explain how the difference in color helps to make people look unlike.

Compare with the class the texture of the skin in various parts of the body. Find where the skin is thinnest and most sensitive. Where is it thicker than ordinary skin? Explain why the skin is thickened on the soles of the feet when people walk a great deal. Why will an oarsman or a blacksmith have hard, calloused hands? Explain how corns are caused, and how to avoid them by always wearing well fitting shoes.

Have the children examine their own hands to find where the skin fits smoothly and where it lies in folds or wrinkles. Do the same with the arm. Ask all to move the fingers back and forth. Repeat with the hand and forearm. Who can think of a reason why the skin which covers a joint is looser and more wrinkled than elsewhere?

Look at a bit of skin through a magnifying glass and compare its overlapping layers to the shingled roof of a house. Why is it better to have the skin made in this way rather than as a perfectly smooth surface?

Call attention to the tiny holes which dot the surface of the skin; also to the fine soft hairs which grow out of it. Find another part of the body which grows out of the skin. Show the children how the nails look under the microscope.

(2)

THE SKIN IN ANIMALS

Who has a pet dog at home? What kind of a covering does he wear? Give each child a chance to describe the smooth or shaggy coat of his pet.

What animal has a covering of wool? Why does the farmer shear this off when summer comes? Write on the board the names of a number of animals and ask the children to describe the covering which each wears. The same idea may be developed in another way by describing the covering of animals well known to the children, and letting the class give the name of the animal from your description.

How are our barnyard fowls and the birds protected by the covering nature has given them? Sketch a robin on the board and show how his feathers are arranged to shed water and keep him from being wet or cold. Ask each child to watch some bird until he can describe the different colors of its plumage. Notice the young birds as they appear this spring and find how their plumage differs from that of the parents. When does it change its color? How can we tell the male and female birds by their plumage?

Notice the covering worn by other forms of animal life in your own vicinity. If near the seacoast, study with the children the shell of the clam and lobster and the scales of different fish; if in the country, call attention to the covering of the frog, caterpillar, squirrel, rabbit, or that of any animal or bird which may be found on the way to school. Too much material rather than its lack will confront every teacher, and judicious selection must be made in order not to encroach upon the time needed for other topics.

As fast as the children become familiar with the characteristic covering of any bird or animal, help them to compare this with the skin which protects our own bodies. How does it differ? Is there any way in which it is like our skin?

Find parts growing from the skin of the bird which correspond to our nails. Find similar parts in the cat, dog and hen. How do these parts differ in each case? In what ways are they alike?

Find parts growing from the skin of the cow, goat and deer which are different from anything found in man. What parts grow from the skin in insects?

Make all work of this kind with little children wholly informal. The wise teacher will follow their lead as far as possible, at the same time never losing sight of the object to be gained in taking up this phase of the topic, namely, to teach the children to notice the covering of animals, and to think how and why it differs from that of people.

(3)

USES OF THE SKIN

Go outdoors with the children and find a plant which lives only until frost comes. Find another of about the same size which lives and grows year after year. Cut a section from the stem of each and compare the two. What difference can be seen? How does the tough hard skin of a tree protect it from storms and freezing weather?

How is the bird kept warm in winter? the fox? the sheep? Talk about the covering of animals already studied, and help the children to decide in each case how this protects the animal from the cold. Think of reasons why animals need coats of hair or wool or feathers, while people have no such natural covering.

The skin helps to protect every living thing from too great cold or heat, but it is not thick enough in people to keep them warm without other covering as it does the animals.

How do we keep warm in winter? Call attention to the houses which shelter us from storms, the stoves and furnaces which warm the air inside, and the thick clothing we wear. Show that our clothing helps to keep us warm, but does not have heat in itself any more than the stove does when there is no fire in it. If we wrap up a chair in thick clothing the chair is no warmer than before. It is really the food we eat which makes us warm.

The skin protects the body in other ways besides helping to keep out the cold. Notice what happens when anything comes near our eyes. The little curtains of skin quickly shut down over them and keep out anything which might cause them pain.

Tell the children the story of the chemist who once had a bottle explode in his hands. At first he thought his eyesight was destroyed, but when the surgeon made an examination he found that the man had shut his eyes so quickly that the pieces of glass had struck only the lids, while the eyes themselves were unharmed.

Every child has had more or less burns and bruises, and can tell from his own experience how the skin protects different parts of the body from injury. When a room is to be swept why do we cover up the furniture? Show that we need the covering of skin on our bodies to keep dust and dirt from the delicate parts within.

Call attention again to the little holes on the surface of the skin and explain their uses. Ask why we have ventilators in a room. Show that the pores of the skin act as ventilators of the body. They work much better than those in any room for they do not need any one to look after them. When we are too warm they open wide and let out the extra heat; when we are cold they close of their own accord and keep the heat inside.

What do we call the drops of water which come on our faces when we are very warm? Tell the children that the body gets rid of some of its waste matter through the skin when we perspire. In this way the pores of the skin are like little sewers as well as ventilators.

How many ways have we found now in which the skin helps the body? Who can name them all? Such a very useful part must be well taken care of, so we may study next the

CARE OF THE SKIN

Why do we not wear the same clothes year after year? Suppose a child should try to put on the coat he had worn two or three winters before, why would it not fit him? Get from the children the main reasons why we change our clothing; because it quickly gets soiled, because it wears out, because we outgrow it, and because we need to dress according to the weather. People and animals need new skin every little while for some or all of these reasons. We must find how they get it.

If any in the class have pet birds at home ask such children to tell the others when their birds moult. Explain the reason. Tell the chil-

dren also how an animal's fur differs in summer and winter. Birds and animals need different clothes for hot and cold weather as much as we do, but they can not make or buy their own, so mother nature has a new suit for them as often as they are ready for it.

In the country a snake's skin can often be found in the spring. Bring one into class if you can get it. Explain how the little owner got rid of this old suit, and where his new one came from. What other animals shed the skin.

We do not have a new skin all at once as the snake does. How do we get rid of worn-out parts almost without knowing it?

Use the microscope again to show the tiny scales which compose the outer layer of the skin. Call attention to the different appearance of these scales; some just ready to drop off, others loosening a very little, and still others firmly fixed in place. Explain that new skin is all the time growing underneath, and as it grows it pushes off the outer layer little by little, but so gently that we are scarcely aware of it.

If we could have new clothes or an entirely new skin every day, it would not matter much what kind of care we took of either, but we must wear the same ones some little time, so it is necessary to keep them in good condition.

Watch how the cat takes care of her fur coat. What is the first thing she does when she comes into the house, especially if she has been where it is at all muddy? How do the birds keep their feathers smooth and in perfect order? What do our hands and faces need after we have been at play?

Many children come from homes where little or no training in personal cleanliness is given. This lack must be made good in the schoolroom. Call on some of the neatest children to tell what they know about the rules for bathing, and supplement their fragmentary knowledge as much as may be necessary to acquaint every child with the proper temperature of water for warm, tepid aud cold baths, the best time for taking each, the reason soap should be used, the value of a daily morning bath in cool water, and the necessary precautions against taking cold.

Tell the children why all clothing worn during the daytime should be replaced by a different set of garments at night. Explain what should be done with clothing taken off at night which is to be put on again in the morning.

Show the effect of fresh air and sunshine on the skin itself as well as in purifying our garments. How can we tell people who have spent the summer at the shore or on a farm by their looks? What kind of a complexion do people have who live in dark houses and who seldom go outdoors?

Pot two plants in the same kind of soil. Place one in a sunny window and keep the other in the dark for several days. Keep both well watered and notice the difference in the foliage. Show that light and sunshine are equally necessary to people's health, and see that your pupils are outdoors several hours a day in all but the most inclement weather.

Find what the children are in the habit of eating at home and at school, and tactfully suggest a more healthful diet where necessary. Everybody wants to have a good complexion, and to get such and keep it one must eat food which makes good blood. Put a list of such foods on the board.

We can usually tell the tobacco smoker by his sallow complexion and muddy skin. Men who want to hire boys nowadays often ask them to hold up their hands. If the tips of the fingers are yellowed and stained by the use of tobacco, they are rejected in favor of some one else.

MEMORY POINTS

The skin covers the entire surface of the body.

The skin is most sensitive on the tips of the fingers and on the face.

The skin fits the body perfectly in every part.

The hair, teeth, and nails are changed parts of the skin.

Animals have thicker coverings than people because they can not provide clothing for themselves.

The skin helps protect the body from heat, cold, injury, and dirt.

Some of the waste matter from our bodies passes off through the skin.

The skin must be bathed often to keep it clean and in good working order.

Pure air and sunshine keep the skin healthy, and help to give one a good color.

We must eat plain, wholesome food if we want to grow and keep well.

Alcohol and tobacco often spoil the looks of the skin.

AUTHORITATIVE QUOTATIONS

ALCOHOL HINDERS THE WORK OF THE SKIN

Alcohol dilates the arterioles and capillaries of the skin. If ale be used in comparatively small amounts for a long period of time the capillaries of the skin become permanently dilated, thus giving the skin, especially of the face, a very red appearance. When the skin becomes thus changed, it can not properly perform its portion of the work of excretion, and so the kidneys have to do a portion of the work which the skin ought to do. Thus they become overworked.— W. S. Hall, Ph.D., M.D., Professor of Physiology, Northwestern University Medical School.

ALCOHOL AND SKIN DISEASES

So frequently is alcoholism accompanied by acne rosacea that we are warranted in believing that these diseases hold the relation to each other of cause and effect. Undoubtedly this skin disease is produced by the paralyzing influence of alcohol on the vaso-motor nerves. Thereby the contracting force of the blood vessels is lessened; the blood stream is not moved forward with normal rapidity; blood collects in the vessels and enlarges their caliber; acne rosacea is the result.—*Journal of Inebriety.*

ALCOHOL LOWERS THE TEMPERATURE OF THE BODY

The slight heat caused by the internal combustion of alcohol, which contains but little carbon and hydrogen compared with real foods, is counterbalanced by the effect of alcohol in lowering the temperature of the body. The dilation of the blood vessels of the skin, the increased radiation from the surface of the body, facts proved by experiments, far more than compensate for the slight gain in heat which combustion of a few grams of alcohol can produce in the system.—Dr. E. Destrée, Professor in the University of Brussels.

"How light the touches are that kiss
The music from the chords of life"

While the oxidation of alcohol within the body may give rise to a certain amount of heat, the circumstances attending its oxidation remove from it all claims as a food material. Still more shall we be justified in denying its food properties when we remember that the increased bodily temperature lasts only for a single moment. Within two or three minutes after its ingestion paralysis of the peripheral nerve endings causes dilatation of the surface blood vessels, giving rise to increased heat radiation, so that though the total amount of bodily heat may for a short time be increased, the increase in heat radiation more than compensates for the increased production, hence the actual temperature of the body is lowered after the imbibition of even very small quantities of alcohol.—Dr. John Madden, Professor of Physiology in the Wisconsin College of Physicians and Surgeons.

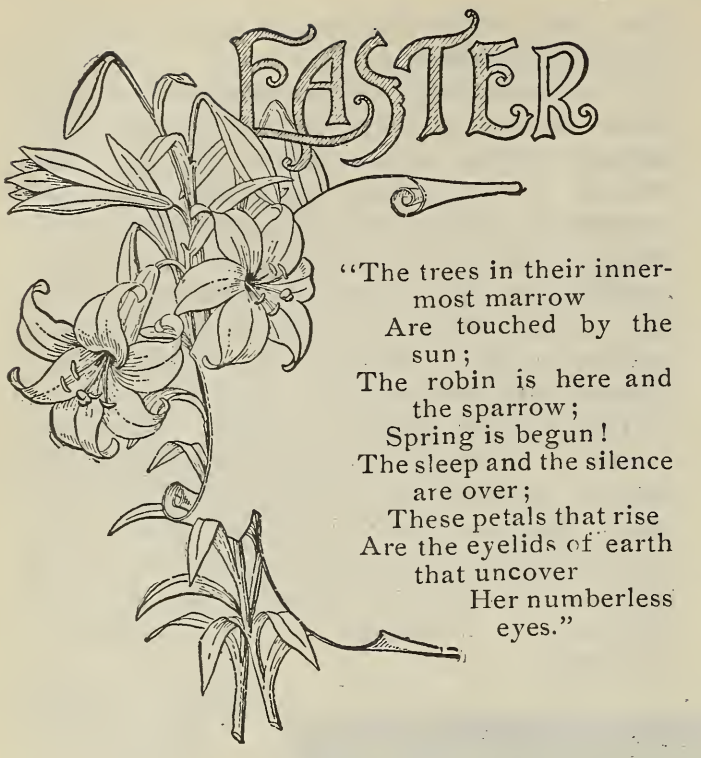
Dr. Pembrey says alcohol seems to act in two ways. It has little or no effect upon the production of heat in the tissues, but greatly increases the loss of heat by causing the cutaneous vessels to dilate, stimulating the sweat glands, and quickening the circulation. The normal reaction to cold, namely, increased production of heat and contraction of the cutaneous vessels, is partly paralyzed by large doses of alcohol, with the result that drunkards exposed to cold quickly freeze to death. Even small quantities of alcohol appear to bring about a certain lowering of the temperature — about half a degree — whilst poisonous doses act in an extraordinarily marked manner in this direction. — G. Sims Woodhead, M. A., M.D., Professor of Pathology in the University of Cambridge.

SPIRITS PREDISPOSE TO HEAD STROKE

It seems quite certain also that not only is heat less well borne but that head-stroke is predisposed to when spirits or beverages containing much alcohol are used. Sir Joseph Fayrer says that "a young man who goes out to any tropical country and neither smokes nor drinks is doubly armed against the climate and all other evils." — Lane, Notter and Firth in their *Theory and Practice of Hygiene.*

A teacher was explaining to a little girl how the trees developed their foliage in the spring. "Ah, yes," said the little miss, "I understand; they keep their summer clothes in their trunks." —*New England Magazine.*

"Winged lute that we call a bluebird,
You blend in a silver strain
The sound of the laughing waters,
The patter of spring's sweet rain,
The voice of the wind, the sunshine,
And fragrance of blossoming things,
Ah! you are a poem of April,
That God endowed with wings."


EASTER
"The trees in their innermost marrow
Are touched by the sun;
The robin is here and the sparrow;
Spring is begun!
The sleep and the silence are over;
These petals that rise
Are the eyelids of earth that uncover
Her numberless eyes."

OVERDUE

WE can not understand why the world has had to wait so long for saving truth. It was four thousand years from the beginning before He came who said: "I am the truth." Truth was isolated for fourteen hundred years after Christ, waiting for its recording angel, the printing press, to tell its story to those who had no gold with which to pay for the copied page.

More than eighteen hundred years went by before steam and electricity furnished the wings that are sending truth on the printed page in all tongues to the uttermost parts of the earth.

Meantime, men are delving as never before for the answer to the inquiry concerning almost everything, "What is truth?" The answers, and the practical use men are making of the answers they are wringing from nature's hitherto hidden secrets, are transforming human life in nearly all its aspects.

The use of alcoholic drinks has been coeval with human history, and through the ages has been a cause of misery that language is poor to describe. Within the last twenty-five years modern scientific investigation has stripped the glamour from these beverages and shown that it is the nature of the alcohol they contain to cause the misery which follows their use.

During the centuries gone, time has seemed to be a factor retarding human progress. Long periods of years have been allowed to elapse between an important discovery of truth and its application to human need. Whether it is because the world is nearing the time when the reign of evil is to be limited none can tell, but certain it is to the student of events past and present that application sooner follows the discovery of truth to-day than ever before in the world's history. It was only seven years after Dr. Benjamin Ward Richardson's discoveries concerning the evil nature and effects of alcoholic drinks that the first temperance education law was enacted in this country, requiring these truths taught all pupils in all public schools, and less than twenty-five years had elapsed before the study was made mandatory for all pupils in the schools of almost the whole country. These laws began to go generally into force, with a good, well graded school literature, about 1890. Four years after this study was generally pursued the per capita consumption of alcohol for the whole country began to decline, in spite of the fact that a vast army of people came to us during that time from the old world, bringing their alcoholic ideas and habits to increase our drink bill.

On the 28th of February, 1900, in the University Auditorium Hall in Chicago, Illinois, the superintendents of schools of the United States were in session at their annual meeting. Extending across the front of the speaker's platform was an imposing array of large glass tubes half filled with granular matter of various colors, and other apparatus which implied profound research but to which no reference was made in the address which followed on the subject to which they supposedly referred.

Back of these stood Professor Atwater who told the same story that had appeared in the newspapers of the land, to the effect that he had proved that alcohol protects the material of the body as effectively as sugar, fat or starch, and therefore is in that sense a food. His caricature and that of others who followed him of temperance teaching in the public schools, of its advocates, and the indorsed books were cheered in a way that would have gladdened the brewers but sickened those who see no permanent overthrow of this crushing evil except through education.

Being a member of the National Educational Association and having, therefore, a right to the floor, the writer of this article, mentally saying like Esther of old, "If I perish, I perish," ventured to call the attention of the audience to the fact that Professor Atwater, judged by the figures of his own tables, had not proved that alcohol protected the material of the body of the man experimented on, and therefore had not thus proved it to be a food. As a result, a committee of seven was chosen whose duty it was to "report upon the condition and progress of scientific inquiry as to the action of alcohol on the human system, and to recommend what action, if any, by this department is justified by the results of these inquiries."

During the twelve months that followed, more testimony as to the results of scientific inquiry on this question came to us from the laboratories of the old world and from our own

country than ever before in the same time. Care was taken that this should reach the committee of seven and all superintendents of schools in the United States as far as possible.

Three weeks ago the superintendents of schools from the Atlantic to the Pacific and from the lakes to the gulf were again in session in Chicago. The hall was full, and the silence intense when Mr. Lane, District Superintendent of the Chicago Schools, chairman of this committee, read the report.

When that part was reached which stated that "no authority has been found to maintain that alcohol is a food in the ordinary sense of that term; and that the question of the supposed food value of alcohol is a technical one for experts to determine, and not one which needs to concern the man and woman who are engaged in the work of public instruction of children and youth," the audience cheered, and we knew that the friend was right who said as we entered the hall: "There is a different spirit here from that of last year."

The full report was as follows:

"The Department of Superintendence agrees cordially with the special advocates of the temperance cause in holding that everything which public instruction can do in the battle against intemperance ought to be done, and that both physiology and hygiene should be so taught as to leave in the minds of children and youths an adequate and proper knowledge of the effects of alcoholic drinks, stimulants and narcotics on the human system.

"Since the last meeting of this department there has been considerable discussion of the question as to whether alcohol under any conditions is properly to be defined as an article of food. Medical authorities are quoted in support of both sides of this question; but no authority has been found to maintain that alcohol is a food in the ordinary sense of that term. The question of the supposed food value of alcohol is a technical one for medical experts to determine, and not one which needs to concern the man and woman who are engaged in the work of public instruction of children and youth. (Applause.) For them, it is enough to know that its use as a beverage is injurious and that all authorities agree in deprecating the formation of the drinking habit, and in commending all practicable efforts, through public instruction, to promote the cause of temperance.

"The questions of highest importance for teachers and superintendents of schools to consider are those which relate to the methods by which temperance instruction shall be imparted, the extent to which it shall be carried, and the subject matter to be presented.

"The educational side of this question is vitally important and demands thorough and systematic study.

"We, therefore, recommend that a body of educational doctrine be formulated which may guide temperance instruction in the schools throughout the country, and we further recommend that the scope of the investigation be so enlarged as to cover not only the topics already suggested, but also the whole field of personal hygiene, so far as this is a practicable matter for school instruction.

"We also recommend that this investigation be conducted under the direction of the National Council of Education, in accordance with the regulations of the National Educational Association."

Professor Henry Sabin, who has been rightly termed the Horace Mann of Iowa, seconded the motion for the adoption of the report in a brief but earnest speech in which he appealed for "a candid and sincere committee in whom the country could have confidence," to be chosen from the Council to continue the investigation of this topic. Quickly there came the call for "question" which was immediately put and the report was adopted without further discussion or a dissenting voice.

The reader will see that three important points have been unanimously agreed to by this national body of educators:

First, they cordially agree with the special advocates of temperance that the school should do everything it can to impart adequate and proper knowledge concerning the use of alcoholic drinks and other narcotics.

Second, that in their judgment the claim that alcohol is a food in any just sense of the use of the word "food" is not sustained, and that the Atwater discussion on that point is not germain to the teacher's work.

Third, that the educational side of this subject is vitally important and demands thorough and systematic study.

We are grateful for the effect of the twelve months' study of truth as shown in the first two points of this report, and for the sense of need of more study expressed in the third.

It is nineteen years since the first temperance education law was passed in the United States, and eleven years since these laws began to go quite universally into force in the schools under your jurisdiction, educators of this country. This is not the slow-going fifteenth or sixteenth century, but the twentieth century when application follows quickly on the heels of discovery. Your enthusiasm for this branch, the result of your own professional study to ascertain what has been discovered and therefore should be taught on this subject, is overdue. The school, the country, and the times are waiting for it. The men and women of America have too often responded to the clarion call of duty to the home, the school, and the country to fail now, and we can not believe they will.

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"A gush of bird-song, a patter of dew,
A cloud, and a rainbow's warning,
Suddenly sunshine and perfect blue—
An April day in the morning."

ANTI–ALCOHOL STUDY IN EUROPE

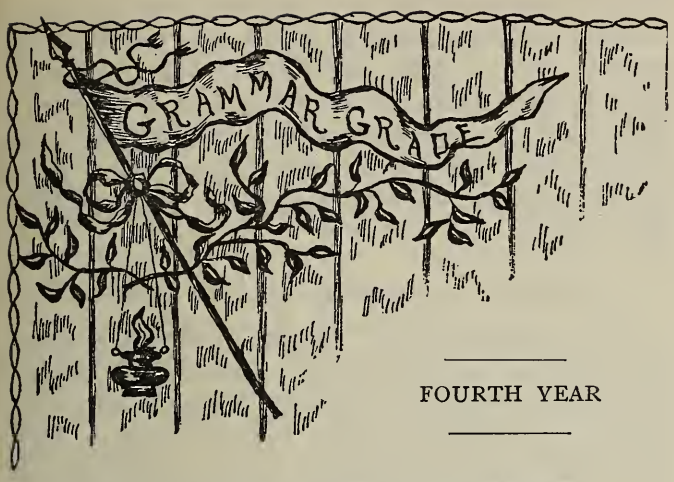
NO estimation of the prospects of the abolition of alcoholic slavery upon which the new century dawns would be accurate which left out of account the results of scientific inquiry in Europe. The "Congress for the Prevention of the Abuse of Alcohol" at its last session in Paris changed its name to "The Anti-Alcohol Congress," showing that it has discovered that any use of alcohol as a beverage is abuse.

There is a total abstinence society in Germany composed of one hundred and fifty physicians who edit and contribute scientific articles to its monthly organ, *The Internationale Monatsschrift zur Bekampfung der Trinksitten*. There is also a teacher's total abstinence society which publishes an able monthly organ, *Die Enthaltsamkeit*, which shows that a deep sense of the teacher's responsibility to the future for the overthrow of the alcohol slavery has reached them. The famous universities of Switzerland, Basle and Zürich, and of Würtzburg are headquarters for active promulgation of the scientific reasons for total abstinence, in which hundreds of the medical students and graduates take part. In France the Academy of Sciences carried on an extended series of physiological investigations which brought them to the conclusion that alcohol is a poison (*Bulletin of the Academy of Medicine*, 1895, Vol. XXXIV.) In Italy an Anti-Alcoholic League has been organized to which the entire medical society of one of the provinces has just voted its full approval and adhesion. In England the scientific method has gained for total abstinence some of the most prominent men in the medical profession, among whom are Dr. Sims Woodhead, Professor of Pathology in Cambridge University, and Dr. Victor Horsley, Professor of Chirurgy in University College, London, whose recent lecture on the effect of small doses of alcohol, with its conclusion that science points to total abstinence, has echoed through the entire medical world.

One of the most active temperance organizations of the present time is located in Vienna, Austria, an organization which curiously enough grew out of the appearance of the plague in that city in 1898. When the hospital attendant, whose carelessness in handling the cultures of the plague germ in the laboratory caused the outbreak, his nurse, and the doctor who attended him were all stricken down, the hospital committee sent for Dr. Poeck, who had made a special study of the plague in India. Before taking him to see his patients the committee offered him what they supposed to be the best possible fortification against the contagion, a glass of champagne. Much to their surprise the doctor refused it and asked for a cup of tea. Dr. Poeck was not able to save the patients, but he prevented the plague from spreading further, and then the terror-stricken people in joy over their deliverance could not do enough to show him honor. Everywhere he was fêted and dined. All of these occasions he used, not for his own advantage, but to impress upon the people the principles and importance of total abstinence. Now there is an abstinence society in Vienna which includes many of the most distinguished physicians of the city, and which is actively preparing and disseminating most valuable total abstinence literature among all classes of the people.

MRS. MARY E. GIFFORD

A RARE soul has passed into the life eternal in the going away of Mrs. Mary E. Gifford, State Superintendent of Scientific Temperance Instruction of the Massachusetts Woman's Christian Temperance Union. For a number of years local and county superintendent of this work, and for nearly three years in charge of the State department, Mrs. Gifford brought to the work not only her own well-grounded convictions as to its necessity and importance, but a grasp upon its underlying principles which, when coupled with her great executive ability, made her a most successful leader. With a mind of unusual activity she quickly perceived the essential features of any situation, and brought to bear upon it a consecrated purpose, unfailing tact, and a cheery, winsome faith in human nature. Persistent, courageous, tender-hearted toward all humanity and responsive to its need, a loyal and sincere friend, Mrs. Gifford held a warm place in the hearts of all with whom she came in contact and leaves a far-reaching influence upon many lives.



FOURTH YEAR

MUSCULAR DEVELOPMENT

AN oak may be started in a nursery, and its early growth so stimulated that in twelve months it will have reached the size of a three-year-old tree grown under normal conditions. But transplant the two into the same soil and note the difference. Instead of continuing their development simultaneously, the older tree will far outstrip the other until the real difference in their ages is again apparent.

The time factor can never be ignored in growth, whether one deals with plant or animal life. It is as essential for the child as for the tree. The training of the strongest man in history began before his birth, and was not relaxed until he came to manhood. Admiral Dewey's reputation was made in a few hours, but behind that brilliant victory at Manila lay years of preparation both in body and mind which alone made his success possible.

The nation intrusts the work of citizen-making in large measure to the schools. It is their mission to give to the mind and to the body of youth "all the force, all the beauty, and all the perfection of which they are capable," and to this end the work must continue without break from the lowest primary grade to the completion of the course, each year witnessing its own degree of advancement.

Take, for example, the development of the muscular system. Children grew up some how and acquired more or less of strength and skill before ever hearing of muscles, but since growth is always dependent upon certain conditions it is wiser to act in accordance with them understandingly, than to trust to luck that they may be stumbled upon.

With this premise, how shall we take up the work of this topic with fourth year classes. First we must know ourselves and be ready to make plain to our pupils

WHAT IT INCLUDES

for them; and how they are to eat, drink, sleep and exercise that this year may show a distinct gain in physical development, equally removed from forced and from stunted growth.

The first lessons will naturally take up the study of the muscles themselves and their relation to the rest of the body.

As we look at a person or an animal we do not see the muscles. Where are these parts of the body? A good idea of the relative position of muscles may be had by looking at the cross section of a chicken's leg. Have this well cooked, then cut carefully through the thickest part, using a small saw for the bone.

Have the class examine the cut surface and name the different layers, skin, fat, muscle, bone. Compare their structure. Why should they be arranged in this order? Find whether the same arrangement is followed in other parts of the body, the wings and breast, for instance. Show a chart of the muscles, and find from this whether the muscle layer covers the whole body.

Ask the pupils to imagine they have no muscles. What are some of the things which they could no longer do if this were the case? Find how the muscles help in walking, running, eating, playing ball, jumping rope, reading. Which muscles are used in each case? Have the class mention other kinds of work or play, and determine how each is made possible by the action of the muscles. Point out from a chart the important muscles of the body and find what each does. Find muscles which work in pairs and show why this arrangement is a good one. Make drawings of muscles of different shapes and sizes. Why are they not all alike? Find the strongest muscles in the body. What are the strongest muscles in the horse? the cat? the swallow? Cut open a chicken's heart and find what it is made of. Why should it be made of muscle rather than bone? Notice the tendons in a chicken's leg and compare these with muscle. Why are both tendons and muscles needed? Find the tendons in the wrist; the tendon of Achilles. Read to the class the myth which gave the name to this tendon?

WHAT IT DEPENDS UPON

Get from the different members of the class their idea of the size and height of a well developed boy and girl of their own age.

Compare with correct measurements taken from the statistics of examining physicians, life insurance companies or gymnasium directors. Take the same measurements of your pupils and let them see for themselves which of their own muscles need special training to bring them up to the proper standard. Suppose one child has small, undeveloped legs. How can he make them the proper size? Discuss forms of exercise which will develop these muscles. Why should one not take long walks at first? Why is regular exercise necessary? Find how one should exercise to develop the arm muscles; those of the back, shoulders and waist. Why are very strong muscles of little use if the

heart is weak? How can we strengthen the heart? Show how the lungs and the way one breathes are connected with muscular development. Find two ways in which daily exercise in fresh air and sunshine strengthens the muscles. Compare the free, graceful motions of animals with the more awkward movements of people. How are we often hampered by the clothing we wear? Bring out the reasons why people need clothing, and decide how it should be worn to give free scope for muscular development. Find what muscles will be weak and stunted if one wears corsets or tight bands about the waist; small sleeves; tight shoes.

Why does one feel weak and faint after going without food for some time? Have the class find from their text-books how the food one eats gets to the muscles. What kinds of food can build up muscle? What kinds give it strength? Study the kinds of food allowed to athletes under training, and decide why each is used.

WHAT WILL HINDER IT

Find differences between muscle and fat; then where each is needed, and where it is not. Why is a fatty heart weak? Study the effects of alcoholic drinks, especially beer, upon muscle. Why can these substances not be used as foods?

Show that the important factors in muscular development are a steady increase in growth and strength. How are both hindered by the constant use of even a little beer, wine or cider?

Why do we feel pretty sure that boys who lounge about on street corners looking for something to lean against are in the habit of smoking? Why do they feel weak and tired most of the time?

Find how tobacco can cause this effect, both by what it does and by what it does not do.

How do we take care of a piece of choice machinery? Show that the body needs even greater care because it is more valuable. Ask your pupils to find about what they cost their parents each year for food, clothing, home and care. If the same amount of money were put into a fine animal or a handsome piece of furniture, we should take the best of care of it. Can we afford to do less in caring for ourselves?

AUTHORITATIVE QUOTATIONS

ALCOHOL DOES NOT INCREASE STRENGTH

The belief that alcohol gives strength to the weary is particularly dangerous. To stifle this feeling of fatigue in order to be able to work on, is like forcibly closing the safety valve so that the boiler may be overheated.—G. Bunge, M.D., Professor Physiological Chemistry, University of Basle.

ALCOHOL LEADS TO FATTY DEGENERATION

If by the aid of the microscope we examine a very fine section of muscle taken from a person in good health, we find the muscles firm, elastic, and of a bright red color, made up of parallel fibres with beautiful crossings; but if we similarly examine the muscle of a man who leads an idle, sedentary life, and indulges in intoxicating drinks, we detect at once a pale, flabby, inelastic, oily appearance.—Henry Monroe, M.D.

ALCOHOL PARALYZES WORKING MUSCLE

The experiments of Gluck show that alcohol paralyzes in a very evident manner, and during a very long time, the muscle which works with energy and without rest. Gluck has been able to follow the paralyzing action of one dose of alcohol for ten hours, and to establish the fact that ale may diminish by one-half the muscular product.—H. Priesig in *L'Abstinence*.

ALCOHOL LESSENS AMOUNT OF WORK DONE

The total work product obtained with the use of alcohol is less than that obtained without it. It is the same in cold countries and in temperate regions. And we know that mountain guides, balloonists, bicyclists and athletes in general recognize the bad effect of alcohol on the muscular energy developed.—E. Destrée, M.D., Professor in University of Brussels.

ALCOHOL A SERIOUS HINDRANCE TO WORK

From personal experience and from experiments most carefully conducted over large bodies of men, it is capable of proof, beyond all possibility of question, that alcohol, in ordinary circumstances, not only does not help work, but is a serious hindrance to work. — Sir Andrew Clark, M.D., Physician to the late Queen.

No amount of alcohol, however given, can increase the amount of work done in that same period of time without giving rise to very serious disturbances in some part or other of the body; indeed, the amount of work is never increased, as any temporary excitement is invariably followed by depression of such nature that the increase of work supposed to be done during the period of excitation is far more than counterbalanced by the diminution in the amount of work done during the period of depression.—G. Sims Woodhead, M.D., University of Cambridge, England.

ALCOHOL ON STRENGTH AND ENDURANCE

Sir H. Kitchener found that grog rations showed loss of endurance, health and morale in four days; a beer ration gave the same result a little later. The abstainers gained in desirable qualities daily.

In the German army the Kaiser finds the beer-drinking soldier fifteen to twenty per cent. less effective than the abstainer.—G. D. Haggard, M.D.

NINETEENTH CENTURY NOTES

VI. LIBERTY AND UNITY

FORTY years ago this month there were stirring times in this broad land of ours. From north, south, east and west could be heard the sound of thousands of feet hurrying forward to that "irrepressible conflict" for human liberty of which the signal shot had fallen upon the little garrison of Fort Sumter.

Compromise and concession in the hope of averting disunion and war had been tried for the last time, and unsuccessfully, during the winter months between Lincoln's election and inauguration. The situation was clearly the result of the growth of two diametrically opposing ideas; on the one hand was the principle that all men are born free and equal, which had been one of the foundation stones of the nation's independence; on the other hand, the doctrine that one race might be held in personal subjection and degradation by another. But amid the confusion of secession and of the first months of actual strife, even among those who had labored most earnestly to create opposition to slavery as a great moral wrong, there was indecision and uncertainty as to what bearing this possible breaking up of one nation into two might have upon the slavery question. Not a few, even Garrison and Horace Greeley, were inclined to let the South go peaceably if by that means the power of slavery could be broken. But the more far-sighted President saw that slavery had defined its own issue when it claimed the right of secession, and on that ground it must be met. "My paramount object in this struggle," he declared, "is to save the Union," and since slavery was the root from which disunion had sprung he had faith that it was in the providences of God that the Union would be preserved, and that somehow in its saving slavery would perish. Above the strife and confusion the sob of suffering humanity was heard, whose needs would not be met nor its woes relieved by a mere political separation, peaceable or otherwise, of the slave and free states.

The First Reading of the Emancipation Proclamation

The war once begun went on in dreadful earnestness. The emergency in time brought forth great leaders; among them Lee and Stonewall Jackson for the South, Grant and Sherman, Farragut and Porter for the North. The tide of battle swept north then south, and up and down the Mississippi, but the conflict centered about the "border" states, where pro-slavery and anti-slavery, union and secession sentiments strove for mastery. At length, the time came when the President in his wisdom gave new heart to the strife and joy to the lovers of liberty throughout the world in that Emancipation Proclamation which freed the slaves in the states which had seceded, and began the work, sealed later by the Thirteenth and Fourteenth Amendments to the Constitution, which abolished slavery universally and forever from the territory of the United States, and made the Declaration of Independence at last a living reality. When the four years' war was ended slaveryhad ceased, but the weather-worn flags fluttering to-day above quiet graves in every corner of the land in ever increasing number tell at what fearful cost the Union was saved and the principle of personal human liberty established.

The decade following the close of the war was a period of readjustment. Provision had to be made for the legal and political status of the lately liberated race; the states which had seceded had to be restored to their normal condition in the Union. It was a delicate situation needing a more politic hand at the helm than that of President Johnson. Yet, while serious mistakes were made, law and order at last prevailed, and the republic, freed from the humiliating reproach and weight of slavery which for fifty years had hampered it at every step, having vindicated the principles of national integrity and the freedom and equality of man, was ready to enter upon a new field of

activity and to develop along hitherto untried lines.

While the United States was settling on the battlefield the great issues which had divided her councils, and the eyes of all the nations were turned toward her in anxious uncertainty as to the outcome, the rest of the world had not stood still. Despotic Russia had even outstripped democratic America, and while the latter was hesitating on the brink of war Russia's Emancipation Act of March 3, 1861, had set free her nearly 30,000,000 serfs without loss of life or treasure.

The restless Emperor of France, ever dreaming of a world-wide Napoleonic power, and seeing that the hands of the United States were tied with her own troubles, had taken advantage of one of the then frequent revolutions in Mexico and overthrowing the native government had set up Maximilian of Austria as Emperor. But as soon as the Civil War was over the United States re-asserted the principles of the Monroe Doctrine, and having a well-trained and victorious army to enforce those principles if need be, the French Emperor, unsupported even by public sentiment at home, found discretion the better part of valor and withdrew his troops from Mexico, leaving the unfortunate Maximilian to his fate which soon overtook him at the hands of the Mexicans. Left again to herself, Mexico in time worked out her own salvation to national freedom which began in truth in 1874 with the adoption of a liberal constitution under which the nation wisely guided by President Diaz has prospered.

The frustrating of France's schemes in Mexico was only one of the many difficulties which began to press in upon her after 1865. As in the case of Louis Phillipe, the lack of success on the part of Louis Napoleon to keep France in an influential position in the councils of Europe, his absolute failure in Mexico, the rise of a strong power across the Rhine, the increasing corruption and extravagance of the court, and the repression of liberty of speech and action, all were undermining the empire and preparing it for the disasters which soon came. The push which suddenly toppled over this weakening structure came suddenly and with far-reaching consequences.

In 1863, King William of Prussia had called to the head of his ministry, the man who by his skill, his foresight, his patience, his persistence was to create a new nation, Herr von Bismarck. "Bismarck," says a late writer, "was alert, combative, ruthless, framing a policy and pursuing it without a shadow of turning; a man of one idea—the consolidation of German nationality—but of infinite resource in attaining its realization." As a preliminary step in securing such a consolidation under the leadership of Prussia, Bismarck proceeded to rid the German states of Austria as a "non-German" power. Together Austria and Prussia, in 1864, had seized the Sleswick-Holstein territory; then, as Bismarck had probably anticipated, friction arose between the two over the government of this territory and war easily followed. The Prussians, gaining the co-operation of the North German states and of Italy who had a grudge of her own against Austria, because Venice was still Austrian territory, were easily and speedily victors, and the "Seven Weeks' War" of 1866 gave Prussia all she had hoped for. By the terms of peace Austria was excluded from the German union in which she had so long been the controlling factor, the Confederation of North German States was organized with Prussia at its head, while Austria was further weakened and the cause of Italian independence strengthened by the cession to Italy of Venice and all Austrian possessions in the Italian peninsula.

Southern Germany was still to be won, however, and to do this the pre-eminence of France must be weakened. It was not difficult to make a cause of quarrel. France fell into the trap so skilfully laid and in a burst of national passion, unconscious of her own inherent weakness and of Prussia's military strength, began the Franco-Prussian War of 1870. In less than two months the French army had been defeated, Napoleon III. was a prisoner, the empire had fallen, and the third French Republic had been proclaimed, while the German troops were pressing toward the gates of Paris. Four months later the brave defenders of the French capital were compelled to yield. The South German states, bound first by treaties, and now by the ties of having fought in a common cause, felt for the first time the heart-throbs of patriotism for a united Germany, and in the historic palace of Versailles, in January, 1871, William, king of Prussia, was crowned William I. of Germany, and German unity accomplished at last.

Meantime, Italy had not been neglecting her opportunity. The cession of Venice and other Austrian dependencies, in 1866, had left only the papal states near Rome outside the dominion of Victor Emmanuel. "Italy shall never enter Rome," Napoleon III. had declared, and the troops of France accordingly had guarded the temporal power of the Pope. But the war with Prussia which compelled France to withdraw her troops from Rome gave Italy her chance. In September, 1870, the Italian troops entered Rome; one month later the citizens by a vote of one hundred and thirty thousand to fifteen hundred voted for annexation to the kingdom of Italy; in July of the following year Rome became the capital of the kingdom, and the dream of a united and independent Italy was realized.

France had fallen upon troublous times. Her government had been overthrown. The terms of peace had demanded the sacrifice of the Rhine provinces, Alsace and Lorraine, and the payment of a billion dollars war indemnity. The worst elements in the nation asserted themselves, and for two months in the spring of 1871 Paris was under mob rule—the Commune—which brought only terror to the people and disaster to the city. But order was at length restored; the Third Republic under the presidency of Thiers set itself sternly, heroically and successfully to meeting the conditions of peace imposed by Germany. The republic, as such, triumphed over the various parties of monarchists and by 1875 was definitely organized, while liberty of speech and thought, equality before the law, and the right of trial by jury had been secured to the individual.

Thus at the end of the third quarter of the century the world had taken a long stride forward. Personal liberty for all races had been won in Russia, the United States, and the South American empire of Brazil. Wider civil and political liberties had been secured in France and Switzerland. Germany and Italy had completed the work of national independence and territorial unity, while even conservative Austria had granted some concessions to Hungary and other dissatisfied portions of the empire and had united Austria and Hungary under one crown. Steam and electricity were yearly bringing the far corners of the earth into closer touch. Railroads had been built in the United States connecting the Atlantic and Pacific coasts; the Atlantic cable had been perfected; while the completion of the Suez Canal had opened the new highway between Europe and the East which "human ingenuity for nearly twenty-five hundred years, since the days of the Pharaoh Necho, had been endeavoring to accomplish." The East itself was beginning to awake, and Japan was seeking a place among civilized nations. Undaunted explorers were penetrating the secrets of the heart of Africa and pushing their way into the ice-locked regions of the Pole.

The era closing in 1875 had been one of political and constitutional questions. The interests of the succeeding quarter century were already foreshadowed in the coming to the fore of social, industrial and commercial activities. The relations of governments to individuals, and of the rights and privileges of individuals in the state had become somewhat definitely defined. Coming years were to struggle with the even more complex problems of the relations of man to man.

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'Tis the first robin of spring!
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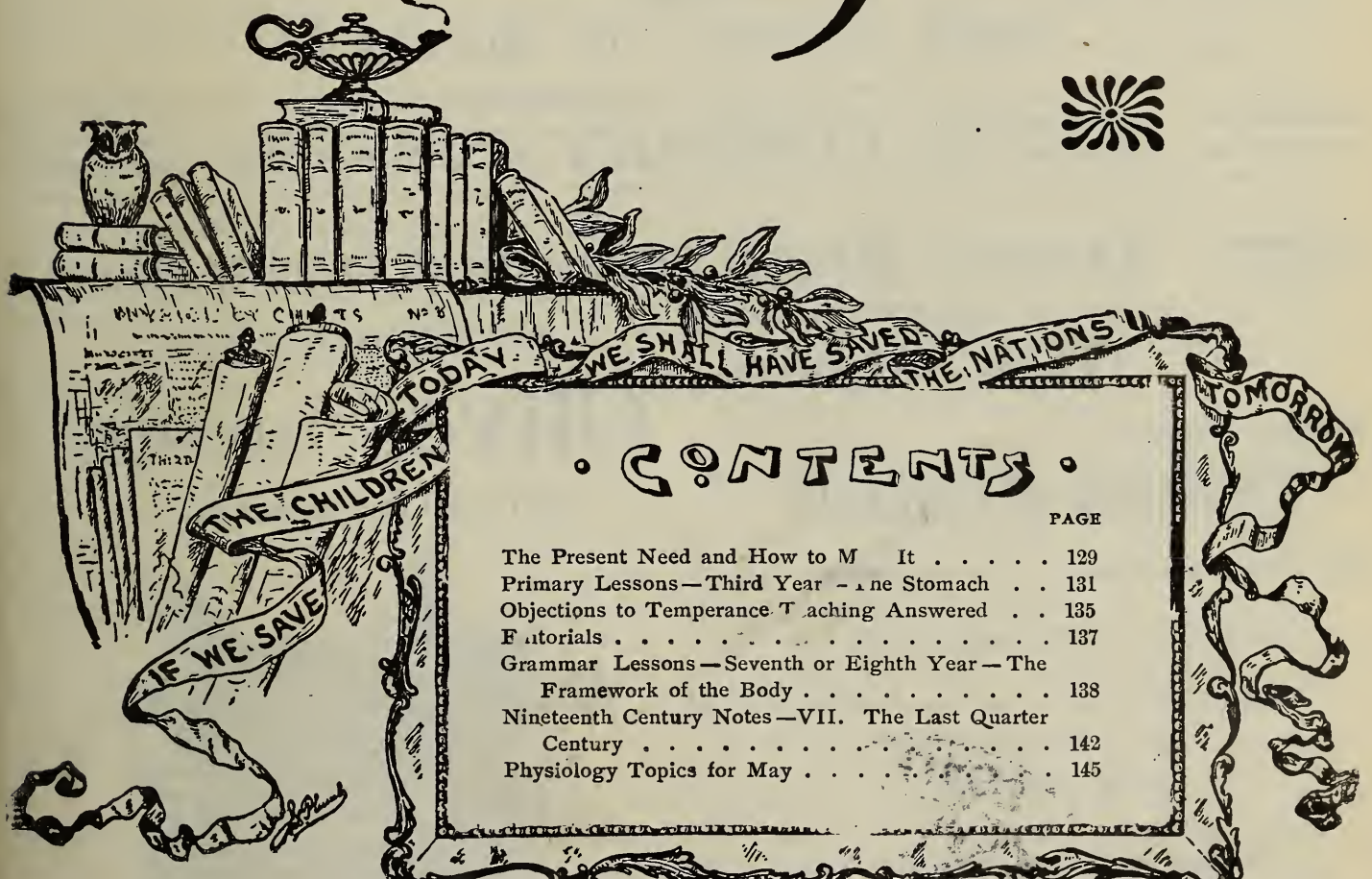

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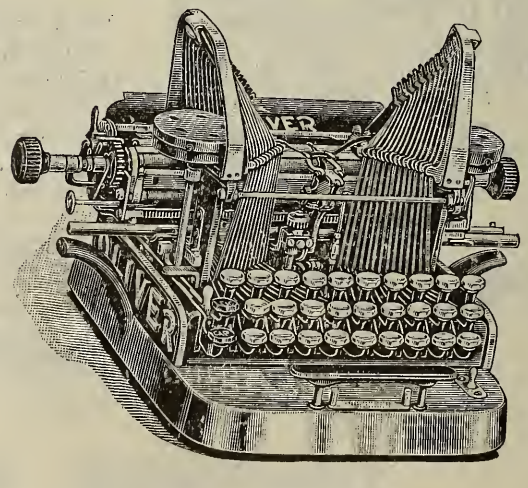

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School Physiology Journal

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APPLE BLOSSOMS

Have you plucked the apple blossoms in the spring?
In the spring?
And caught their subtle odors in the spring?
Pink buds pouting at the light,
Crumpled petals, baby-white,
Just to touch them—a delight!
In the spring?

If you have not, then you know not, in the spring,
In the spring,
Half the color, beauty, wonder of the spring.
No sweet sight can I remember
Half so precious, half so tender,
As the apple blossoms render
In the spring.

WILLIAM WILSEY MARTIN.

THE PRESENT NEED AND HOW TO MEET IT

ONE day last summer, on the way home from one of the middle states, I reached New York in the early morning before the down town offices I wished to visit were open. While waiting I strolled into Washington Park. I used to play there with my two little sisters in my childhood days when with our parents we lived in New York City. I had many times before seen the great arch erected there by a grateful people in honor of the Father of his country, but now I had leisure to study its grand proportions and inscription. The words at the top recalled a momentous hour in our national history. One hundred years ago and more, the convention was in session which framed the Federal Constitution which has held this nation together amid the strain and stress of a century.

While these constitution makers were in session, suggestions that palliatives and half measures would be most likely to find favor with the people seemed to be moving the convention, when Washington arose, his tall figure drawn up to its full height, and uttered the never to be forgotten words, a part of which I read from the top of that great arch that summer morning:

"If to please the people, we offer what we ourselves disapprove, how can we afterward defend our work? Let us raise a standard to which the wise and honest can repair; the event is in the hand of God."

I can never tell how those words carved in stone and blazoned by the morning sunlight thrilled and cheered me. They were the expression of a lofty soul whose vision swept the moral horizon above the clamour of political truculence and selfish greed, and, seeing in that crisis God's great purposes for this new nation, called his countrymen to see them also. The event has proved that under the Constitution we have become a nation recognized as a great world power.

Our greatest danger now as a nation is not from violence from without, but from alcoholic and other narcotic habits within. In view of this danger, the sovereign people have said that all the schools shall teach all the future men and women of this land the evil nature of these foes and, together with the laws of health, their effects upon the human system, and we are so teaching. But it is seen that such universal knowledge will hurt the traffic in these substances, and from many sources there has come to me the urgent request, sometimes coupled with a threat, that the teaching about the nature of alcohol, that it is a poison and not a food, be taken out of the text-books.

"Do it for the sake of harmony. All the opposition, personal and otherwise, will die if you will." "Let us get together on some common ground where we can all stand." "Why are you so tenacious for a mere form of words in asserting that alcohol is a poison?" "It is not good policy to be so tenacious." "Why do you insist that all grades of pupils shall get this instruction?" "Conciliate by conceding to these disaffected school men."

All this and more importunity of the same sort was ringing in my ears that morning as my eyes rested on the words, "Let us raise a standard to which the wise and honest can repair; the event is in the hand of God." Then I knew it was not obstinacy or self-will that had refused response to entreaty for compromise, but loyalty to that standard to which the wise and honest can repair, leaving the event in the hand of God.

A nation redeemed from bondage to alcohol is "the event" which is in God's future for us if we are only true in these critical times. The laws that require this study are almost universally enacted. Millions of school children are studying the graded school literature on this subject that is being issued by nearly every school-book publishing house in this land.

The Atwater and other efforts to array the medical profession against this study have failed. Physicians are more than ever its friends. Now the suggestion of compromise needs to be met by study on the part of every temperance man and woman in the country, so that we all may

be sure of the reasons for the faith that is within us.

Another reason for this study is the fact that the last annual meeting of superintendents of schools at Chicago asked for the appointment of a committee by the National Council of Education to report to the National Educational Association a body of educational doctrine concerning the study of temperance physiology in the schools, covering three points: the extent to which the study should be carried, the methods of teaching it, and the matter to be taught.

The National Council to which these questions are referred is composed of sixty members chosen from the National Educational Association to which the Council reports. Every teacher, principal, and superintendent of schools in the United States is eligible to membership in this Association; hence, if the Council take up these questions their recommendations concerning them will be acted upon by the Association. You will see, therefore, how important it is for every teacher in the country to be well informed on these three points.

Concord Bridge.

In educational circles there is an amazing amount of misapprehension as to what our temperance education laws really require. "Scare" objections have been dinned into the teachers' ears until many have taken it for granted that these objections are true and well grounded. But misapprehension and even prejudice will break down before the clear light of facts, and with these every teacher should become familiar.

Material for the discussion of the first question, "What shall be taught in temperance physiology," is found in the leaflets comprising the New Century Study of the Alcohol Question (price eight cents per set, or thirty-five cents per hundred), and in other leaflets and pamphlets published by the National Department of Scientific Temperance Instruction.

The second question for discussion, "To what extent shall temperance physiology be taught," is thoroughly considered in the leading article of the SCHOOL PHYSIOLOGY JOURNAL for April of this year. This is also reprinted in leaflet form (price five cents).

Material for discussion of the question, "By what methods shall this subject be taught," will be ready for distribution at an early date.

"All truths have passed through periods of sifting and struggle before coming to their fruition." The future of our nation one hundred years ago depended upon the adoption of a constitution which was not time-serving but was adapted to the needs of its growth and development. To-day its future depends upon the education of all its coming citizens in the utmost truth that warns against their greatest enemies, alcohol and other narcotics. Let us rise to the emergency, make the truth our own and give it to others. MARY H. HUNT.

"The year's at the spring,
And day's at the morn,

Morning's at seven,
The hill-side's dew-pearled;

The lark's on the wing;
The snail's on the thorn;

God's in his heaven —
All's right with the world."

WHY

Why do all the meadow brooks
Try to run away,
As though some one were chasing them?
Bless me! this is May.

Please tell me why the trees
Have put new bonnets on?
Please to tell me why the crows
Their picnics have begun?

Why does all the whole big world
Smell like a fresh bouquet
Picked from one of God's flower beds?
Oh, I know! it's May.

R. M. ALDEN.

"For us are coming fast and soon
The delicate witcheries of June."

THE STOMACH

WHEN physiology was first taught in our schools, many good people were shocked at the idea of their daughters studying the different organs of the body. "It is far more modest," they argued, "for them to know nothing about what is inside of them."

False modesty of this sort, with the ignorance it entailed, was largely responsible for the errors in dress and diet of former days, and these in turn helped to make ill-health fashionable for girls and women, since they must endure it in any case.

The almost universal study of physiology and hygiene has changed all this, for with knowledge of the body and its needs has come a degree of wisdom in caring for it. Girls are dressed more simply, and romp and play out of doors with their brothers; boys learn the evil nature of cigarettes and alcoholic drinks; houses are better ventilated; food is better cooked and eaten more regularly. In a thousand ways life has improved, until nowadays one must sin with his eyes wide open if he fails to have and keep a healthy body.

Intelligence does not imply immodesty. As the child learns how marvelously his body is fashioned, and how, by giving it proper care, he may fit it to be the able instrument of his higher powers, he becomes self-reverent. It is his body, he can make it largely what he will, and in the majority of cases he will choose to keep it in health.

Food in its relation to the body is a vital topic in physiology, and the more so because errors in diet may not be promptly punished. If a person cuts his finger it pains him at once, but if he injures his stomach he may not feel the effect for years. The subject of digestion, then, must be given special attention, and should be explained in such simple language that the child will get a clear idea of how this process is carried on, and its close relation to health and life.

The present lesson presupposes that the class have taken up the subject of foods and mouth digestion, including the work of the teeth. The next step is to find what becomes of the food after it is swallowed.

(1)

THE WORK OF THE STOMACH

The perennial interest of children in fairy stories and tales of adventure shows what a deep hold anything out of the ordinary has upon their minds. Take advantage of this fact in giving the present lesson. The story of King Midas and his power to turn everything he touched to gold will make a good beginning.

It would have been a very wonderful thing if this story were true, but just as marvelous changes really take place nowadays

Who has ever planted a seed? Perhaps you all have. What did the seeds look like? What happened to them after they were put into the ground? Tell about the plants which grew from these seeds. Do they look like the seeds they came from? King Midas himself could not have made them more unlike if he had turned them into gold.

What does the cow eat for her breakfast? Show the children a bunch of grass and a glass of milk placed side by side. Nothing could differ more in looks or taste, yet the grass the cow eats helps to make this milk.

Give other illustrations, if necessary, of familiar changes until the children think of their own, and realize that these changes taking place under our very eyes are just as wonderful as those King Midas is said to have caused.

Hold up an orange. This is a fruit we all like, and it is good for us because it helps to make us grow. But before it can do this it must be made a part of our bodies. How can this be? An orange does not look at all like our arms and legs, or like skin or bone or flesh. A very wonderful change must take place to make them alike, and we want to find what it is.

Put on the board an outline drawing of a child at table, or have such ready to show the class. We will play that this boy in the picture has just put a spoonful of orange or a bit of meat into his mouth. What is the first thing which happens to it?

As the children have already learned about mouth digestion, review it at this point, asking different ones to describe the teeth and their work of making the food fine, and also the juices of the mouth which help to moisten the food and make it easier to swallow.

Even in going this little way some change has taken place in the mouthful of food, but it does not look like any part of the body yet. What happens to it next?

Add the alimentary canal to the drawing on the blackboard, and ask some of the class to show from this where the food goes after it is swallowed. Does it drop down the throat to the stomach? Country children will have seen a

horse drinking water with his head much lower than his body. This shows that whatever is swallowed can not drop into the stomach. Explain how the walls of the throat close behind the food and push it along little by little until the stomach is reached.

Point to the stomach in the drawing. What does it look like? Make a bag to illustrate the size and shape of the stomach. Line it, and let this lining be larger than the outside so that it will lie in folds unless full and stretched out. Partly fill this bag with some substance and show how the walls of the stomach move in different directions, squeezing the food inside and making it finer yet.

What did we find in the mouth which helps to moisten the food? Tell the class that there is another kind of juice which is made in the walls of the stomach. This helps also to dissolve the food. It is called the gastric juice.

After our boy's food has been shaken about in his stomach for quite a long time, and well mixed with the gastric juice, it does not look like the orange or meat he started with. It is more like a rather thick soup.

Perhaps some of it is fine enough now to be made into different parts of the body. If it is, it soaks through the walls of the stomach, just as we sometimes strain soup through a cloth, and the tiny blood vessels in the walls of the stomach take it up and carry it all over the body.

It is part of the blood by this time, and we know the blood helps to make every part of the body grow. Some day we shall learn where the rest of the food is changed into blood, for the stomach does not do all of this work.

REVIEW STORY

Cora was on the pier watching the ducks swimming about with their little ones.

"Why do they put their heads under the water?" she asked her mother.

"Perhaps they are after worms in the soft mud. A nice fat worm is just what they like," said Mrs. Lake, "and our ducks look as if they had had a pretty good breakfast of them this morning.

"Do you see what large bunches they have be ow their necks? Those are their stomachs, or crops.

"Everything the duck eats goes right down its throat into this little bag. It can not chew its food as we do because hens and ducks have no teeth.

"They have a different way of grinding their food. Watch some day and you will see them picking up bits of stone and gravel.

"These go down into the crop with the food, and then on to another kind of stomach, the gizzard. Here these stones grind the food as fine as our teeth could do, and it is mixed with different juices which help to dissolve it.

"Every part of the duck needs some of this food to make it grow. If all the food stayed in the crop or the gizzard the rest of the body could not get its share, so it must be carried to every part.

"This is the work of the blood which runs in little pipes all through the duck's body. When the food has been made fine enough, the blood takes it up and carries it just where it is needed most. The legs get their share, and the back and wings and breast. Not a single part is left out."

"Do I grow that way, too?" asked Cora.

"Ask Ralph," said her mother. "That was his physiology lesson in school to-day. But perhaps he doesn't know about ducks, so you can tell him this story."

(2)

WHAT THE STOMACH IS MADE OF

A visit to some mill in the neighborhood will be interesting and helpful in connection with lessons on the stomach, and some or all of the children can no doubt have this opportunity.

Ask such to tell the class what they have seen. If a flour mill has been visited let them describe the mill-stones, and tell what these do to the grain.

We may think of the parts of the body we have just been learning about as the body mill. Who knows the reason? We do not have mill-stones to grind up our food, but we have something else we call grinders. Where are these grinders of ours?

How many do we have? Count them. Show where they are in the blackboard drawing.

Bring a small mirror into class and let the children look at the inside of their mouths. Call attention to the bright pink color, and to the fact that the inside of the mouth is always moist in order to dissolve our food more quickly. How does it differ in these respects from the skin on the outside of the face?

If we could look into the stomach we should find its lining has very much the same color as the mouth. When there is no food in it this lining lies in ridges or folds. After we have had our breakfast or dinner these folds partly straighten out, then squeeze together over and over again till all the food is made fine and soft.

Name something you have seen which you can stretch and make larger. What do we call such things? The walls of the stomach are very elastic. When we eat they stretch out longer and larger to hold the food. When the stomach is empty it takes up very little room.

We can call the stomach a part of the body mill because it helps to make our food fine, but it is not meant to do the work of the teeth.

Who has seen a cow eat her breakfast? She

swallows the mouthfuls of grass as fast as she can bite them off without stopping to chew them at all. This is because she can do something we can not.

When she has had all she wants to eat, she lies down in the shade and the little balls of food she has eaten come back into her mouth to be chewed. We are not made like the cow, so we have to chew our food before we swallow it or not at all.

Name some things we can do or not just as we like. How is it about eating? How often do we have to take food? The stomach has to work every time we eat whether it wants to or not. If it should get sick or wear out we could not have another to take its place, so we must learn how to take care of it.

(3)

CARE OF THE STOMACH

Perhaps some of you have had the stomach ache after a Thanksgiving dinner. Do you know what the trouble was? Suppose we fill this bag just as full as we can. Now try to squeeze it. This is the trouble with our poor stomachs when we have overeaten. They are so full the food can not be moved about or dissolved by the stomach juices as it ought to be.

One way, then, in which we can take care of our stomachs is never to eat so much as to make them feel uncomfortable.

"Why do they put their heads under the water?"

Another way is to eat only the right kinds of food. How many of you have your own special friends whom you like better than you do anybody else? We all have, and the stomach has its friends whom it is always glad to see coming down this little stairway from the mouth.

Name some of the stomach's friends. We will write them on the board: Fruit, meat, vegetables, bread, eggs, milk. These are all welcome, but they must be very fresh and good.

The stomach likes nuts and candy once in awhile, but not between meals after it has been hard at work grinding up other food and needs to rest. When shall we eat these things?

There are certain things which the stomach does not like. We must know what these are so as not to make a mistake and take them. Some of these are pickles and spices and tea and coffee. The stomach does not like much pie or cake, or very rich food of any kind, because it has to work a great deal harder than usual to make such things into good blood, and sometimes it can not do it at all.

One day I saw a little boy all doubled up in pain. He had tried to smoke a cigarette, and his poor stomach was so indignant it had turned all his breakfast out of doors. What shall we do about cigarettes and all forms of tobacco if we want to treat our stomachs well?

Another thing the stomach does not like is any kind of drink with alcohol in it. You know how it would make your throat smart if you should get pepper in it. Alcohol hurts the stomach in much the same way. It makes its work harder, too, when much has been taken.

Some people think a glass of beer or cider now and then will not hurt them, but the great trouble is that such people never stop with one glass. They take one to-day and perhaps two next week, until by and by they can not let it alone at all, and their poor stomachs are spoiled for life.

AUTHORITATIVE QUOTATIONS

ALCOHOL A POISON

Alcohol is a poison the habitual use of which destroys more or less quickly, but none the less certainly, all the organs most necessary to life — the stomach, the liver, the kidneys, the blood vessels, the heart and the brain.—*London Lancet.*

ALCOHOLIC LIQUORS INJURE THE DIGESTIVE ORGANS

Prominent among the substances which may irritate and injure the digestive organs are the beverages known as alcoholic liquors. This irritation, where it is often repeated or severe, causes disorders and injury of the stomach. The irritated cells pour forth an excessive secretion, and become in time, if the irritation is kept up, incapable of performing their ordinary function.—H. F. Hewes, M. D., Harvard University.

ALCOHOL MAY CAUSE DISEASE OF THE STOMACH

Every part of the body is diseased by this

fell poison [alcohol], and every organ is affected in its own peculiar manner. We have the ulcerous stomach, the dropsical abdomen, dyspepsia and jaundice among others.—PROFESSOR FALLS, in *Journal American Medical Temperance Association.*

When constantly irritated by the direct action of alcoholic drinks, the stomach gradually undergoes lasting structural changes. Its vessels remain dilated and congested, its connective tissue becomes excessive, and its power of secreting gastric juice diminishes.—H. NEWELL MARTIN, M.D., F.R.S., late Professor of Biology, Johns Hopkins University.

ALCOHOL RENDERS FOOD HARDER TO DIGEST

The action of alcohol on food is the opposite to that of water. Its tendency is to harden and preserve food and to render it less susceptible to the solving action of the pepsin. It precipitates the pepsin from the gastric juice, so that while its quantity may be increased its quality is impaired, and it is less able to do its work.—W. N. EDWARDS, M.D., F.C.S.

Alcoholic drinks are not nutritive; on the contrary, they retard assimilation and nutrition. —AUGUST FOREL, M.D., LL.D., University of Zürich.

ALCOHOL WEAKENS DIGESTIVE POWER

Under the influence of alcohol, the acidity of the gastric juice and the quantity of hydrochloric acid, as well as the digestive power of the gastric juice, is diminished. This enfeebling of the digestion is especially pronounced in persons unaccustomed to the use of alcohol. —PROFESSOR KOCHLAKOFF, St. Petersburg.

ALCOHOLIC DRINKS DELAY DIGESTION

Alcoholic drinks forced upon the stomach are a foreign substance; the stomach treats them as such, and refuses to go on with the process of digestion till it first gets rid of the poison. This irritating presence and delay weaken the stomach, so that when proper food follows, the enfeebled organ is ill-prepared for its work.—A. F. BLAISDELL, M.D., Boston.

The results of the administration of one ounce of alcohol (half the amount permitted by the physiological limit), is to decrease digestive activity to a notable extent.—J. H. KELLOGG, M.D.

TOBACCO INFLAMES MUCOUS MEMBRANE

The salivary glands are excited by tobacco to over-secretion; and if the saliva is swallowed it conveys the poisons to the stomach, causing irritation and inflammation of the mucous membrane. The muscular contraction of the stomach and intestines is increased. In moderate smokers this acts as an aperient; but if smoking is carried to excess, the muscles may become paralyzed and constipation result.— W. H. RILEY, M.D., Supt. Colo. Sanitarium.

TOBACCO IMPAIRS THE APPETITE

Tobacco impairs the natural taste and relish for food, lessens the appetite, and weakens the power of the stomach. Excessive smoking produces cancerous affections of the tongue and lips.— J. C. WARREN, M.D., Boston.

The ill effects of tobacco are not confined to the nervous system. In many instances there is a loss of healthy appetite for food, the imperfect state of the digestion being soon rendered manifest by the loss of flesh and the sallow countenance.— SIR BENJAMIN BRODIE, M.D.

TOBACCO A CAUSE OF INDIGESTION

Tobacco is a common cause of indigestion. The habit of spitting, so universal among tobacco users, causes a great waste of saliva. The consequence is that not enough saliva is mixed with the food, and digestion is made difficult. Tobacco users are likely to have coated tongues, foul breath, dry mouths and throats. These are all symptoms of a disordered condition of the digestive organs.— W. E. BALDWIN, M.D.

TOBACCO WEAKENS DIGESTION

One of the more common effects of absorption of tobacco products is to impair the appetite and weaken digestion.— H. NEWELL MARTIN, M.D., F.R.S., late Professor of Biology, Johns Hopkins University.

Before superintendent and illustrious visitor.

Teacher (sweetly)—"And now who can tell me a story about 4+5?"

Frank's hand was highest, his face brightest. Who could expect aught but perfection from one looking so wise?

Frank (confidently)—"If there were four blackbirds on a tree, and five of them flew away, how many would there be all together?" —*Ex.*

Teacher—"What is the function of the iron in the blood?"

Tommy Tucker—"It's what makes the finger nails."—*Chicago Tribune.*

The sun had on a crown
Wrought of gilded thistledown,
And a scarf of velvet vapor
And a raveled rainbow gown;
And his tinsel-tangled hair,
Tossed and lost upon the air,
Was glossier and flossier
Than any anywhere.

JAMES WHITCOMB RILEY.

MAY

May shall make the wild-flowers tell
Where the shining snow-flakes fell:
Just as though each snow-flake's heart,
By some secret, magic art,
Were transmuted to a flower
In the sunlight and the shower.
Is there such another, pray,
Wonder-making month as May?

FRANK DEMPSTER SHERMAN.

OBJECTIONS TO TEMPERANCE TEACHING ANSWERED

OBJECTIONS TO THE LAW

1. "The law requires the use of text-books. This is irksome and archaic."

The law provides only that text-books shall be in the hands of pupils when other branches are thus studied. There is, however, a peculiar need of text-books in teaching total abstinence, because a current literature, backed by many powerful influences, is so largely against it.

2. "The law makes the Woman's Christian Temperance Union the judge of both the teaching and the text-books used."

This is wholly an error; there is not a line or a word in any law to justify it. The choice of temperance physiologies is in the hands of the same board that chooses other school books.

3. "Teachers can not teach the nature of alcoholic drinks and narcotics because they are not expert scientists."

The law does not require everything on the nature and effects of alcoholics to be taught, but only that pupils, as fast as their advancement fits them to receive, are to be taught the great, fundamental, practical and well attested facts which it is necessary for them to know for their personal safety and for intelligent citizenship. The little toddler, hardly able to light his cigarette or hold his beer glass, may receive some warning truth. The most expert scientist has not reached the "ne plus ultra."

4. "The time demanded by the law is too much and involves tedious repetition."

The law specifies no limit of time. Information adapted to grade is supposed to be required. Tedious repetition is employed only by tedious teachers.

5. "But primary classes should be excepted. It is cruelty to teach little children the horrible effects of alcohol and narcotics, and tends to nightmare."

See answer to number 3. It is not cruel to teach the baby even by the aid of some slight pain that fire will burn him, and it may not be cruelty but wise kindness to teach the primary grades some of the elemental and practical facts about alcohol and narcotics. Elemental, but not all the ultimate facts are taught about color, form and number.

OBJECTIONS TO THE TEXT-BOOKS

1. "It is puerile and tyrannical detail to say in what part of the book the temperance matter shall be printed, and exactly what fraction of the book or how many pages shall be devoted to it."

If all business, political and social interests were united in desiring first class temperance teaching, as is the case with other branches, conditions would be greatly simplified and details could be largely omitted; but with a large fraction of all these interests against such teaching, some careful details become necessary. But the law does not prescribe exactly what space shall be devoted to temperance; it draws only the minimum line, and certainly there is a minimum if temperance is to be taught at all. To say that the hygiene of an organ should be put beside its anatomy and physiology, and not shut in solitary confinement at the end of the book, seems good common sense and good pedagogy. Incidentally, it is in accordance with the interests of up to date, well graded text-books, well adapted to use, instead of old books revamped. Both physiology and hygiene are progressive.

2. "The physiology is taught for an object, or as a platform from which to preach temperance."

All good teaching is teaching for an object; all good teaching is to build a platform from which to teach right living. The great gain from the study of the anatomy and physiology of the body is that we may better understand its care and its use. A text-book for young farmers might deal, somewhat, with the anatomy, physiology and life processes of the potato plant, but this would be simply a platform from which to teach how to protect the plant from its enemies, secure its best development and harvest its best product.

3. "Children see parents and friends in good health who drink and smoke and thus know the text-books are wrong."

On this plan the text-books could be proved in error whatever physiological law they taught. The penalty of violated law is often not immediately apparent, especially to inexpert observers, therefore the more need of wise teaching of tendencies and ultimate results.

4. "Teaching facts does not make character. Knowledge does not save."

No; but it tends to. The engineer may disregard the red flag, still it pays to raise it, and it may be criminal not to do so.

5. "Experts differ."

Yes, in some details, but if nothing is decided except by perfect unanimity then nothing is settled. But there is practical unanimity among experts who have honestly given themselves to the thorough study of the beverage use of alcohol on individuals and nations and ages, and

they find that it has been and is bad, very bad, and life insurance statistics give this result new and irresistible confirmation.

6. "An author of one indorsed text-book has said that he did not believe what he said in the text-book, but put it in for Mrs. Hunt's indorsement and to facilitate its sale."

When this statement first appeared, several years ago, a letter of inquiry was sent to every author of the indorsed physiologies, all of whom indignantly denied ever making such an assertion.

7. "The Cambridge Physiological Congress declared it wrong to teach that alcohol is a poison."

Please re-read the facts. What this Congress did say was that if a poison is something that is always harmful, then alcohol can not fairly be called a poison. That proposition is a very safe one and antagonizes nobody. But it seems rather wasteful of ink and good breath.

8. "The text-books give dreadful pictures and stories to harrow up the feelings of the children."

Doubted. It is not the text-books but here and there an untaught teacher who errs in this way. But the Committee of Fifty find that seven thousand children in the United States are deserted every year by their parents on account of drink, and there are uncounted thousands more from whose homes all natural child life and joy has fled because of drink. Reasonable hope for the future of such children hardly lingers. Some pain is a necessary incident to the cure of such diseased conditions.

MISCELLANEOUS OBJECTIONS

1. "The teachers are not interested."

This is true in many cases. Most teachers have had no training in the normal school, institute, or elsewhere for teaching this topic. Remedy, interest the teachers. Train them for the work, not dishearten them in it.

2. "Pupils are not interested."

Doubtless this is often true. But neither would they be interested in any study in which the teachers are not. For remedy see the preceding answer.

3. "Alcohol in sickness may be a priceless boon."

Not a pertinent objection. The text-books do not undertake to supersede the family doctor.

4. "There is more harm in overeating than in drink."

A very old chestnut. Text-books in physiology should teach the laws of nutrition and of diet, and they do. But overeating rarely makes a man crazy. Good restaurants are not incitements to crime. Food in plenty tends to the best manhood. Liquor in plenty tends to debase and brutalize.

5. "Total abstinence teaching in the schools condemns many parents and friends, causes pain to scholars, and disrespect and offence in the home."

So would the teaching of moderation in drink. So does the teaching of politeness or of any virtue, whether in the day school, magazine, pulpit or Sunday-school. We can not omit to teach because the truth condemns somebody. Victor Hugo says: "The great enemy of the night is the morning."

6. "The Woman's Christian Temperance Union, or Mrs. Hunt, makes money out of the text-books, and is financially interested to push their sale."

Mrs. Hunt has given a quarter of a century to this work without salary. Contrariwise, she has spent a large sum from her own private resources which has never been returned to her, and nobody rises to tender it. Neither the Woman's Christian Temperance Union nor Mrs. Hunt has received a penny in royalty on any of the text-books, or any money for indorsing the same. Mrs. Hunt is under large expense for travel, for translators, stenographers and many co-laborers which has been only partially met by the Woman's Christian Temperance Union and by generous friends.

7. "Sandow drinks and is strong."

Samson did not drink and was stronger. Individual cases prove possibilities. A multitude of related facts in proper classification alone prove a law.

8. "Cases where alcohol leads to excess are the exception and not the rule."

City Attorney Pickett of New Haven used to tell a story of a gentleman out driving one Sunday afternoon. As he passed a farm house where several children were playing about an open well in the front yard, he suggested to the ancient granger who was enjoying his siesta on the turf that there was danger in leaving his well and his children so exposed. He got this reply: "Stranger, I reckon not more than one child in three years has fallen into that well since the ten years I have been here." Such stupidity marks the story as made to order by a temperance crank, but when the record of the largest mutual life insurance society in England shows that for thirty-two years, from the most carefully selected classes, thirty-eight per cent. more moderate drinkers die per thousand than total abstainers, we are more stupid than the sleepy granger if we do not heed it, and we out-Herod Herod if we do not try to help it.

JOHN B. SMITH,
Author of Supplemental Temperance Lessons published by the *Sunday-School Times*.

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"Oh, sing! the swallows are in tune,
Forget the rain of yesterday;
A few more suns will bring us June,
And this, 'tis Chaucer's month,—'tis May."

EDUCATIONAL REFORMS HAVE ORIGINATED OUTSIDE THE TEACHING PROFESSION

WILL the boys and girls in my schoolroom add to the strength or weakness of this republic? is the serious question facing every teacher in the land. The chances that they will be sources of strength will be enhanced if the law requiring scientific temperance instruction is well enforced. Indeed, so great is our menace from alcoholic drinks and other narcotics that it is not too much to say that the twentieth century civilization is pending on its rising populations being now taught the full truth about the nature and effects of these substances, in connection with the laws of health. The breaking down of the civilization of a nation is first preceded by decline in the character of its citizens. Decline in character due to alcoholism will be prevented if every teacher is now faithfully teaching this special study.

All educators claim to believe in the study, but recent objections of certain educational folks to details which are absolutely essential to the enforcement of any temperance education law remind us of the man "down East" who said he "believed in the Maine prohibitory law, but was ag'in its enforcement." In view of the average high character of public school teachers, any objection from that source would be unaccountable if men in their own ranks had not shown that other progressive steps in education have not originated within the educational profession, but outside, and have been at first opposed, though ultimately ardently supported.

Supt. Barney Whitney, of Ogdensburg, N. Y., in the April number of *New York Education*, says of another important school measure:

"The most serious difficulties to be overcome in this reform movement are the conservatism and prejudice of teachers, the influence of traditional customs and established forms of organization and instruction.

"It is too generally assumed that educational reforms originate with the teaching profession and are wrought out by it.

"In the language of another: — 'We forget that we are, probably, not great men, that our thinking is hired thinking and, in consequence, perhaps not the best thinking.'

"We overlook the history of the past and fail to see the movements of the present.

"Our vision is thrown into the false perspective by our nearness of view. We give little heed to the forces without and fail to recognize that most reforms are due to influences and conditions outside the school, over which the teacher has little control.

"Public kindergartens are due to no efforts of the teaching profession. They were opposed by the public school teachers as an unwarrantable interference and harm to public school teaching. The kindergarten was introduced into the public schools in spite of the teaching profession.

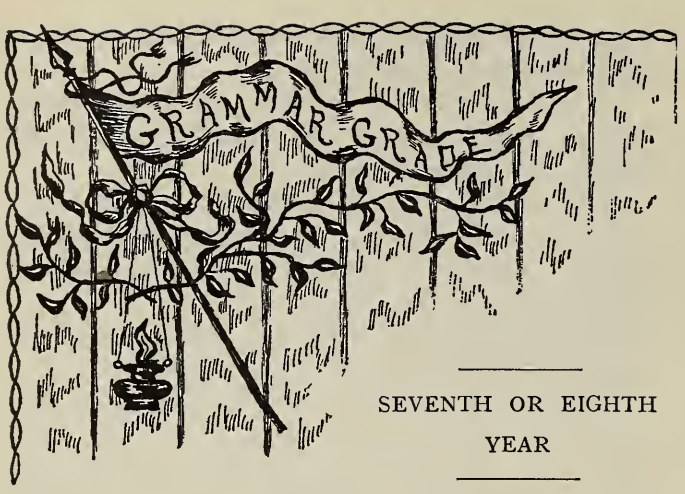
"The present trend of education through expression — that mind and character are developed in proportion as the motor activities are given free play — is due to the philosopher and not to the teacher.

"Drawing was introduced into the schools of this country by the influence of manufacturers and business men of Massachusetts.

"At a national convention of school superintendents, eleven years ago, I listened to one of the most specious, unfair and prejudiced arguments against manual training in the schools, by two of the most noted and reputable school men of this country. In less than five years they became warm advocates of manual training in the public schools, both upon sound educational principles and for its practical value. To outside influences is due its present established incorporation into the public school system and not to the teaching profession.

"The conception of the 'Junior Republic' to take the place of the conspicuous failure of reform schools, and the successful working out of the plan is due wholly to a young business man reared upon the farm."

In the light of this evidence, so ably presented by Supt. Barney, we may look upon this flurry of opposition by certain teachers as a phase in educational experience which will eventuate in better thinking. It is a phase, however, which is intensified by the stealthy influence of the great liquor traffic whose ambushed movements are based on the fact that if the drink habit is fastened on a boy his future money-earning power is thereby mortgaged to the brewer and distiller. Nevertheless, right views and right actions are sure to win in the end.



SEVENTH OR EIGHTH YEAR

THE FRAMEWORK OF THE BODY

IN the great stock yards and packing houses of the West every part of the animal is utilized. Indeed, the profits of the business come from the hair and bones and other portions which can not be used for food, and which less thrifty dealers would throw away.

We must learn to be as economical in dealing with human lives. The school does not fulfil its mission if it produces educated invalids or moral degenerates. It is the nation's nursery for fostering the growth of every organ and faculty of the child, and there should be no waste products.

"Health of body helps health of soul," and the youth who enters the business world with firmly knit limbs and abounding health, together with a trained mind, is twice armed against any form of temptation.

One of the fundamental topics, therefore, for pupils to acquaint themselves with is the framework of the body. A knowledge of its mechanism is requisite to its intelligent care, and as each set of organs is thus studied in their relation to the body, the youth learns how to bring his whole nature to its highest development, and to guard against every encroachment of intemperance, vice and disease.

FUNCTION OF THE SKELETON

The manner in which a subject is presented does much to kindle the enthusiasm of a class or arouse their prejudice. Bones in the abstract are dry and uninteresting, but in the living, breathing individual they too pulsate with life, and this is the connection in which to study them.

The first thing to notice is the great advantage which the possession of a skeleton gives to all animals fortunate enough to have one. What is this advantage? Collect specimens or pictures of various forms of animal life and notice how each is supported and held in place. Arrange those specimens having a framework in one class, and those which have none in another. Find in which class the animals are unable to hold their bodies erect. How is this a disadvantage?

Make a comparison of different kinds of skeletons. Have the class find whether all animals have an inside skeleton. Describe the skeleton of the clam, lobster, turtle. Notice the framework which supports the butterfly, the bumble-bee. How does this differ in each case from the framework of other animals studied?

Find what the skeleton of a plant is, and how it determines the shape of the plant. Ask the artist of the class to sketch on the board the skeleton of a tree, and another of a leaf. Of what use is such a skeleton to the plant?

Bring out the difference in structure between vertebrates and invertebrates, and have the class study the skeleton in several specimens of each. Find how the skeleton of a fish differs from that of a dog, or a bird, and how man's skeleton is unlike all of these.

A good way to show the different functions of the human skeleton and bring to mind the many ways in which it is essential is to imagine what one could do without it. Have the class try this experiment and write their conclusions on the board.

ARRANGEMENT OF THE SKELETON

Notice in what part of the body the skeleton is placed. Why is this a better arrangement for man than to have had an outside skeleton like a crab or snail? Look at a large chart of the skeleton and notice the great number of bones which go to make it up. Why are so many needed?

Classify the bones according to their shape, and write opposite each division the places in the body where such bones are found. Account for the rounded shape of the bones in the head, thorax and pelvis; the long, slender bones of the leg and arm; the many small bones of the spine, the hand and foot.

Find what the different bones of the body are used for; then how their shape exactly fits them for their work. Make a list of those bones which protect some part of the body. Find others which are mainly for support; for strength; for great variety of motion; and so on until all have been classified.

Observe how the bones are fastened together, and in what ways they differ from joints. Why are both bones and joints needed in the body? Compare the different kinds of joints as to freedom of motion, and show how each kind is adapted to its particular work. Find how the hip joint differs from the ball and socket joint of the shoulder, and whether the hinge joints of the arm and leg are alike in all respects.

Saw a thigh bone in two lengthwise and find whether it is of the same structure throughout. Why is such a bone larger at the ends than in the middle? Contrast the red marrow in the

heads of long bones with that found in the bone shaft, both as to appearance and use.

Select some familiar animal and compare its skeleton bone for bone with that of man. Find, for instance, what bones in a bird answer to those in a person's arm and hand; to those in his lower limbs. Pictures or drawings should be used to make this comparison of the most value, and should indicate differences in structure as well as in size and shape.

GROWTH OF THE SKELETON

Find what are the general conditions upon which all growth depends. Food will be recognized as one of the most important. Have the class ascertain what special kinds of food are needed to develop the bones. To determine this point they must first learn of what material bone is made. Teach them to consult dictionaries, physiologies and all available sources of information for themselves in answering such questions.

Burn a bone to show the mineral matter it contains; soak another specimen in dilute hydrochloric acid to reveal the animal portion. Compare the two pieces experimented on and find what properties of bone are due to each of these substances. Why are both animal and mineral matter necessary?

Notice the bones of a young animal and those of one which is old. Find how they are unlike in size and structure. Decide what difference there should be in the food of each on this account.

"A million wings unfold to-day,
A million flowers awake."

Call for lists of foods especially rich in bone-making material. Why is milk the best food for little children? What other foods should be added to further the growth of the bones as the child grows older?

Review the process by which food gets to the bones after being taken into the body. Determine also how fresh air and sunshine can aid the growth of the bones.

Ask for reasons why a child's bones are more easily bent out of shape than an older person's, although the bones of the latter break more readily. Why is it specially important for young people to sit and stand erect, and to have chairs and desks exactly suited to their height?

Show how ill-fitting shoes and tight clothing deform the body by bending the flexible bones of the foot and waist out of shape. Find what organs of the body are thus displaced and hindered in doing their work. Call attention to the vital character of many of these organs and the serious effect which their displacement must have upon the health.

Every one desires to be tall and well proportioned, but most young people fail to realize that it is largely in their own power to determine the kind of bodies they will have. Make it clear to them that size and height and grace of motion depend very much upon the care they take of themselves, and that just as a rough, stony piece of ground can be transformed into a beautiful field, so by attention to diet, to exercise, to clothing, to whatever promotes health and strength, the human body can be improved and made lovely.

EFFECTS OF NARCOTICS UPON THE SKELETON

An old Greek legend describes a curious enclosure called the labyrinth. The entrance was flowery and attractive and it seemed easy to retrace one's steps at any moment.

But once within those winding paths there was no escape. Each new turn led to fresh mazes and more intricate windings, until, sooner or later, the hapless victim came upon the minotaur itself, the hideous monster which inhabited the labyrinth.

The beginnings of intemperance are as enticing and as deadly. The glamour which surrounds the first mild glass of liquor or the first cigarette conveys no hint of the ruin to mind and body which lurks in their train, but it is always there and we must so teach our pupils.

Nature makes no mistakes in her book-keeping. Every debit or credit is entered and finally the account is balanced. Make this plain in connection with the present lesson.

After studying the construction of the framework of the body, its relation to other organs, and what each person can do to further its development in himself, turn to the other side

of the subject and find how growth is checked by the habitual use of narcotics.

This will involve a knowledge of the nature of alcoholic drinks and tobacco. Have the class find by reference to text-books and other authorities why these substances are harmful, even in very small quantities. How do they differ in their effects upon the body from food and the other necessaries of life?

Review all the essentials to the growth of the bones, and find whether narcotics can furnish any of these necessities. What do they give instead? If strong drink gives no aid to the body, in what does its strength consist?

In building a battleship the contractor takes into account every emergency of storm and conflict. He does not build for fair weather or for peace. We must fashion our bodies in like stalwart fashion, building into bone and sinew a reserve strength to serve us in our own times of need, and to be transmitted to the generations which come after us.

AUTHORITATIVE QUOTATIONS

ESSENTIALS TO GROWTH

At any specified age, children of both sexes who live in conditions of favorable nurture are, on the average, both taller and heavier than those of less favored nutritional conditions.—*American Journal of Psychology.*

The essential factors in growth are:

A wholesome diet, properly selected and adapted to the needs of the individual, and taken with moderation.

Abundance of pure air, and proper breathing.

Daily bathing.

Exercise systematically engaged in, whether it be in the performance of home duties, in the garden, or in the gymnasium.—*Dietetic and Hygienic Gazette.*

CORRECT POSITION

The correct position is head up and chin in, chest expanded, and shoulders back and down. In this position, frequently practice breathing by long continued inspirations. As you draw in your abdomen, swell out the sides of your chest and protrude the sternum (chest bone). Night and morning, while your chest is thus inflated, practice briskly rubbing the chest from the sternum backward with the palms of the hands.—Chas. Denison, A.M., M.D.

USE OF NARCOTICS IMPAIRS NUTRITION OF THE BONES

Faulty nutrition of the bones, from the use in youth either of alcoholic drinks or of tobacco, prevents their full development and consequently affects the stature.—H. F. Hewes, M.D., Harvard University.

STRONG DRINK RETARDS GROWTH

Strong drink is received into the living growing system, and the result of its presence is to render growth less perfect, decay more rapid, life less vigorous, and death less remote. Alcoholic drink is especially harmful to children, retarding their growth and development.—Dr. Vacher, F.R.C.S., Medical Officer of Health of Cheshire.

Children of alcoholic parents, trained to the early use of liquor, are stunted in their growth, and a French physician is inclined to ascribe to this fact the decrease in the standard of normal height shown by statistics in that country.—*Jour. Am. Med. Ass'n.*

STRONG DRINK STRONG ONLY TO DESTROY

In whatever way alcohol acts on the body, whether it acts slowly and by successive steps, or rapidly, so as to produce all its evil action in one sharp charge, it acts as a reducer of the powers of life. Never let this lesson be forgotten in thinking of strong drink, that the drink is strong only to destroy. It never by any possibility adds strength to those who drink it.—W. V. Blighton, M.D.

ALCOHOL MAY CAUSE BONE DISEASE

It is known to physicians that serious bone diseases are sometimes due to the continued drinking of alcohol; also that the action of alcohol on the periosteum may render that membrane incapable of forming healthy bone from materials supplied by the blood; thus causing bad nutrition, leading to disease of the bones. Surgeons find that broken bones of habitual drinkers do not unite as readily as those of other patients.—H. Newell Martin, M.D., F.R.S., late Professor of Biology in Johns Hopkins University.

TOBACCO STUNTS GROWTH

Witness the great number of the young who smoke nowadays, and how many promising youths must be stunted in their growth and become a physical and mental wreck before arriving at man's estate? Look at the pale young face, imperfect development, and deficient muscular power of the cigarette fiend?

—T. H. Marable, M.D.

TOBACCO AN INJURY TO THE GROWING BOY

Tobacco in any form is a great injury to a growing boy, and the fashion of inhaling the smoke and then forcing it through the nose is deadly in its effects. It causes catarrh in the air passages, throat, and nose, and makes the smoker disgusting as well as puny and stunted. A cigarette-smoking boy will not make a strong man. But the mischief does not stop with the individual; it is transmitted to his offspring.

The acquired irritability, imperfect development, and loss of nervous force of the father are inherited by the child who, in turn, impairs his health by the same process, so that in the course of three or four generations there must be a great deterioration of the race. The sale of cigarettes to boys should be prohibited by law.—*Journal of Inebriety.*

"Violet! Violet!
I wonder how you knew!
All the earth is cold and wet;
Not a tree has budded yet;
Tell me, will you?—tell me true!
Did God whisper 'Spring' to you?

"Violet! Violet!
I never should have known.
'No,' I said,—'no flowers yet!'
Then beneath the brown leaves wet,
Hiding near a mossy stone,
There I found you all alone!"

"Bliss was it in that dawn to be alive."

"Account yourself happy if it be your lot to espouse some noble and unpopular cause in the beginning, to stand by its cradle, to throw yourself on its broad altar, to see it grow, to help it grow, to see it first arouse curiosity, then attention, then contempt, then hatred, then fear, then respect, always growing and growing until, at last, over prejudice and hate and party and old customs and vested interests, the irresistible current makes its way.

HON. GEORGE F. HOAR.

Spring's last-born darling, clear-eyed, sweet,
Pauses a moment with white twinkling feet,
And golden locks in breezy play,
Half teasing and half tender, to repeat
Her song of "May."

SUSAN COOLIDGE.

Boston Mamma.—"Suppose you have four bunches of grapes, Willie, and eat three, then what would you have?"

Boston Boy—"Appendicitis."

"Sweet May hath come to love us,
Flowers, trees, their blossoms don;
And through the blue heavens above us
The very clouds move on."

BIRDS IN SPRING

Listen! What a sudden rustle
Fills the air!
All the birds are in a bustle
Everywhere.

Such a ceaseless croon and twitter
Overhead!
Such a flash of wings that glitter
Wide outspread!

Far away I hear a drumming—
Tap, tap, tap,
Can the woodpecker be coming
After sap?

What does all this haste and hurry
Mean, I pray—
All this out-door flush and flurry
Seen to-day?

This presaging stir and humming,
Thrill and call?
Mean? It means that spring is coming.
That is all!

—*Sel.*

CHILDREN SHOULD BE TAUGHT TO BE THRIFTY

A savings bank account is a great incentive to thrift in children. If one is begun for the baby, even with a very small sum, and added to through childhood and youth with a certain proportion of the money that otherwise would be spent carelessly and thoughtlessly by the child, there will be a very respectable amount on the credit side of the ledger when the depositor is eighteen years old. The habit of self-denial is not the least of the substantial benefits that follow a wise economy of money.

—*April Ladies' Home Journal.*

"Mamma," said four-year-old Willie, "when I grow up I'll be a man, won't I?"

"Yes, dear," replied the mother, "but you must remember to be neither selfish nor lazy."

"Why, mamma," queried the little fellow in astonishment, "do boys who are selfish and lazy become women when they grow up?"—*Ex.*

NINETEENTH CENTURY NOTES

VII. THE LAST QUARTER CENTURY

M. DE LAVELEYE, the well known political economist, once said that the message of the eighteenth century to the nineteenth was, "Thou shalt cease to be the slave of nobles and despots who oppose thee; thou art free and sovereign." The political realization of this sovereignty was nearly accomplished by the nineteenth century. But as the closing years of the eighteenth century struck for the nineteenth its key-note, so in the last quarter of the nineteenth the stirring of those forces could be discerned which it may reasonably be believed are to dominate the newly opened twentieth century.

"It is no empty exaggeration," says Dr. Joseph Cook, "to say that the nineteenth century has made the whole world one neighborhood. The twentieth ought to make this one neighborhood into one brotherhood. The world was once like a block of marble: struck on one side, the other side did not quiver. But it is now like a mass of sensitive nerve-fibre; wound the modern world anywhere, and it winces everywhere."

The rapid and wonderful improvements in the means of communication did much to promote this neighborliness, especially in the last quarter of the century. Swift, silent messages flew through air and sea over the wires of telegraph and cable. The telephone made communication by the spoken word possible. The slowly written and slowly read autograph letter gave way, in the business world at least, to the clear type-written page, while the letters themselves and their writers were whirled across continents and oceans by swift flying trains and powerful ocean steamers.

In making such rapid transportation possible, science and human ingenuity had conquered innumerable natural obstacles. Mountains were scaled and tunneled; chasms, canons and great rivers spanned with bridges. The snows of mountain peaks, the sands of the plains, the seemingly impassible walls of rock, were all overcome, until it became a saying that no engineering feat was impossible provided money enough could be had to carry it through. It was a far cry, for instance, from the simple wooden bridge over a quiet New England stream, to the slender but unyielding steel structure spanning a gorge in the Peruvian Andes, bearing a railroad track which at one end emerged from a tunnel through the side of the cliff, and at the other plunged directly into the opposite mountain.

Within narrower limits, the trolley-car, the bicycle, and the automobile, all perfected in the last quarter century, helped in making the world "one neighborhood."

Throughout the century, under the strong current of political thought and progress, had run another current from the same source, manifesting itself somewhat differently, yet a part of that rallying cry of the early nineteenth century, "Liberty, equality, fraternity!" "It covered," says Mr. Brooks in his "Story of the Nineteenth Century," "a course of action designed to benefit others rather than ourselves. Selfishness, which has been the curse of the world for ages, has had its hardest knocks in this progressive nineteenth century." Society found itself confronted with the vital question, as expressed by M. de Laveleye: "It is a grand thing to be free and sovereign, but how is it that the sovereign so often starves? how is it that those who are held to be the source of power often can not, even by hard work, provide themselves with the necessaries of life?"

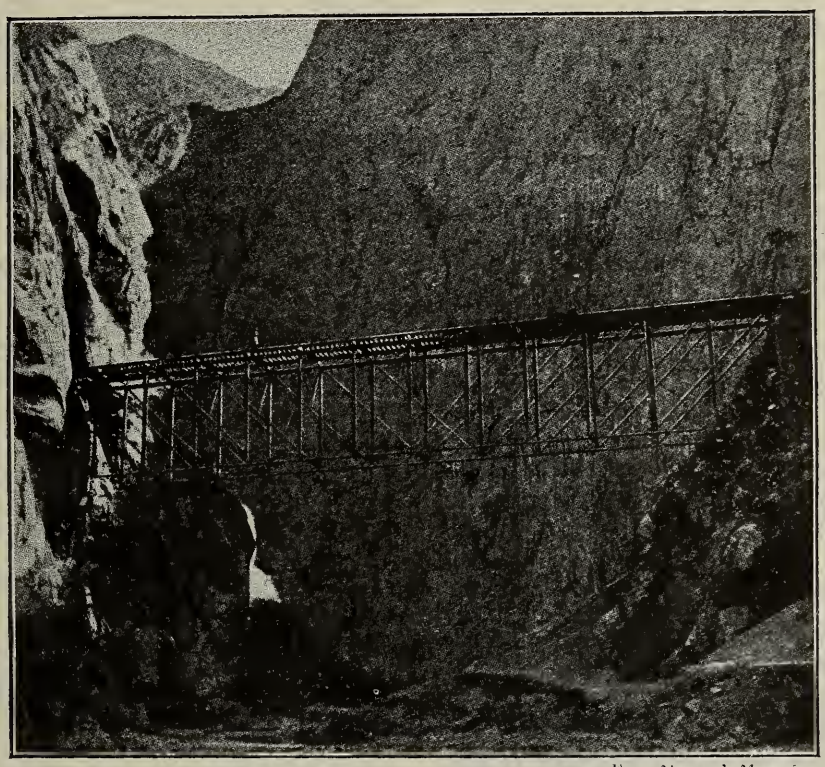
Individuals, organizations, and governments set themselves with more or less seriousness to studying this problem. Workingmen's associations multiplied. Laws tending to alleviate the conditions of the working classes were passed in many countries. Germany instituted a system of compulsory insurance by which state provision was made for laborers disabled by sickness, accident or old age. Yet the subtle relations between employer and employed can not be settled off-hand by mere legislation; the human element is too dominant in these relations, and humanity has not yet made progress enough in the broad spirit of love and common brotherhood for either side to act as a rule with perfect unselfishness. Here and there experiments are being tried looking toward a solution of the problem, a solution, which is, however, still hidden in the unknown future of the twentieth century.

But while the great issue of industrial relations remained unsettled, events were taking place which showed that the world "neighborhood," was really moving on toward the world "brotherhood."

In 1882, the Salvation Army began in England its self-denying practical work among classes which other influences had hitherto failed to reach. "Social settlements" of university and college men and women brought glimpses of true home life and genuine mental and moral uplift into the dark corners of the great cities. Philanthropic institutions, such as hospitals, homes for the poor, the helpless and the afflicted; philanthropic organizations, ministering to almost every special human need, multiplied in behalf of the poor, the sick, the unfortunate, the homeless child, the forsaken aged, the prisoner, the soldier, the sailor, the lumberman in distant camps. The problems of crime and poverty led to a widespread study of their causes and the means for dealing with them. Prevention came to be seen as better

than reformation, and education to be "the first step toward making men really men."

Nor were the impulses toward brotherliness confined by national limits. Famine in Russia and India, massacre in Armenia, or floods in America, called out from all parts of the world a practical sympathy which brought substantial relief to those in distress. But in the complicated machinery of international government relations, change came more slowly. As undreamed-of resources in parts of the earth hitherto little known were found out, and the industrial and commercial activities of civilized nations were stimulated by discoveries, inventions and a wider knowledge of the world's needs, there came a struggle for the markets of the world, and for the possession of territory. Asia, Africa and the sea islands became dotted with the flags of many nations seeking to extend their "spheres of influence" which, when their bounds were definitely set at all, were all too often outlined in blood. Mutual national jealousies often checked popular impulses from interfering in behalf of humanity, as in the case of the Armenian massacres in 1895, yet, before the century closed, the world was taught a new lesson in national responsibility and self-sacrifice as the great free nation of the West came to the help of Cuba and ended forever the medieval dominion of Spain in her long oppressed colonies.



From Munsey's Magazine.

"One of the most difficult feats of railway engineering ever accomplished."

Wars and rumors of wars were rife even up to the end of the century, yet signs were not wanting that the day when war will be relegated among the barbarisms of the past is not an idle dream. The drain upon national resources to maintain great armies and navies, the deadly perfection of the instruments of war, the suffering entailed by it, the settlement by arbitration of international difficulties that less than a century before would have been considered ample reason for war, the World's Peace Conference, all these were "straws" showing that the world, though with painful slowness, was moving toward the day of international brotherhood.

Politically, the quarter century was far from unfruitful although, as we have seen, its work in this direction was chiefly accomplished before 1875. The United States, firmly reunited after a long period of strife and actual separation, though confronted with serious racial, social and municipal problems, was developing educationally, industrially and commercially, and rapidly advancing to the front rank among nations, while at the very end of the century new and unlooked for responsibilities were laid upon it in the care and guidance of the races which had come under its protection.

Great Britain during those years had extended the right of suffrage, making it practically universal, and had strengthened the ties between the mother country and her foreign colonies where nations were growing up with a large measure of self-government, though owning a common allegiance to the crown of England.

On the continent, France, contrary to expectation, had preserved her republican government for nearly thirty years, which, having survived the over-zealousness of friends and the intrigues of enemies longer than any previous government since the days of her kings of the eighteenth century, seems, at the opening of the twentieth century, likely to endure.

Her neighbor, Germany, from a loose confederation of states, had become compacted into a powerful empire, although as yet without real popular sovereignty. "In the United States," says Professor Andrews, "sovereignty rests with the people; in England and France with the popular chambers; in Germany with the Emperor." It can not be denied that this imperial sovereignty has done much for Germany, which, as it were, with the eagerness and strength of youth, had a mind to dare and to accomplish any desired end for the glory of the "Fatherland." Fostered by the government, educational, military, naval, industrial, commercial and colonial enterprises were all set on foot and pressed with untiring energy.

Farther to the east, Japan became, in 1889, a constitutional monarchy, adapting to its own needs with unparalleled rapidity and success the methods and manners of the West. In the same year, the last royal power in the New World fell, and Brazil joined the sisterhood of South American republics where, it has been well said, "although revolution succeeded revolution, never once did these nations let go the central fact of republican independence."

Thus the century drew to its close with individual and constitutional liberty largely won, and while class and international jealousy and avarice showed that ancient passions had by no means yielded their citadels, their defences were being undermined by that broadening charity and sympathy in interests among mankind which are an earnest of the golden time that is to be.

BOOK NOTICES

ELEMENTS OF THE THEORY AND PRACTICE OF COOKERY, by Mary E. Williams, supervisor of cookery in the public schools of New York city, and Katharine Rolston Fisher, formerly teacher of cookery in these schools. The MacMillan Company, New York. Price $1.00.

A few years ago the teaching of cookery in public schools was unheard of. To-day it is given an important place in the curriculum of many of the leading schools and is rapidly being extended to others. The text-book noted above is one of the best of its kind. It is intended both as a hand-book for reference and study and as a manual of directions for actual work in the kitchen laboratory. By its aid the pupil can work independently of the teacher in large measure, and thus soon acquire the confidence and skill which result from actual practice. The style is clear and simple, and the directions easily followed. This book should go far towards making the study of cookery practical, and thus have a direct bearing upon the welfare of American homes.

NEW METHODS IN EDUCATION, by J. Liberty Tadd. Orange Judd Company, New York. Price $2.00.

One can not even turn the pages of this book without realizing the success of the author in combining theory and practice. He believes that man acquires dignity in proportion as he acquires power, and that there is no greater joy in life than that which comes from the ability to use well every trained faculty. This is the keynote of the book, and in its presentation of drawing, modeling, wood carving and kindred topics it shows the remarkable educational power of these methods when rightly used. The book is profusely illustrated and very attractive from every standpoint.

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JUNE, 1901.

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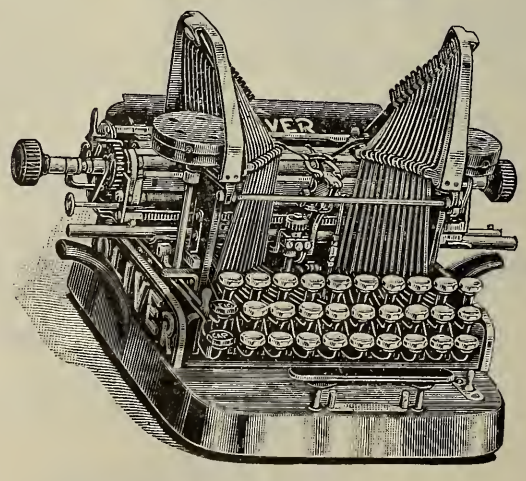

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School Physiology Journal

Vol. X. *BOSTON, JUNE, 1901.* *No. 10.*

THE ROSE OF THE YEAR

MARCH is a trumpet flower,
And April a crocus wild;
May is a harebell slender
With clear blue eyes of a child;
July is the cup of a tulip
Where gold and crimson meet,
And August a tiger lily
Tawny with passion and heat;
But June is the rose of the world,
Precious and glowing and sweet!

Fair is the flush of the dawning
Over the face of the sky;
Sweet is the tangle of music
From wild birds fluttering by;
Brilliant the glow of the sunset,
And graceful the bound of the deer;
Glad is the laugh of the children
Ringing like joy-bells clear;
But what can compare with *thy* beauty,
O red, red rose of the year!

MARY E. BLAKE.

THE ALCOHOL QUESTION

MY present views on the alcohol question came to me in the following manner:

Brought up in the midst of a country of vineyards on the Lake of Geneva, I considered wine an almost indispensable part of human food, being accustomed from childhood to drink some daily. I was given wine to strengthen me, to form blood and God knows for what all. The possibility of an abolition of the use of alcohol never came to my mind. I never had seen a total abstainer.

Thus I grew up. I suffered much from disorders of digestion, later from cardialgia and headaches, without having an idea that two or three glasses of wine a day might have something to do with it. I studied medicine. My teachers all taught that those suffering from alcoholism must get alcohol or they would die of collapse. Abstinence was never spoken of.

In 1873, I became an assistant of v. Gudden, at the Hospital for the Insane at Munich. There, the drinking of wine was replaced by the drinking of beer, and my disorders of digestion became considerably worse. I realized this, but believed that I ought to drink beer, although in great moderation.

In 1879, when I became director of the Burghölzli Hospital for the Insane, and Professor of Psychiatry at Zürich, I made a first weak attempt and recommended my numerous alcoholics to avoid all alcoholic beverages, and did not give them any for some time after the delirium was over. I, however, went on drinking and so did the attendants, and all the other patients and everybody outside. My words remained words, and all my efforts to turn my alcoholics into permanent water drinkers were in vain.

About 1884, I happened to send for a shoemaker in the neighborhood, Mr. J. Bosshardt, to take my measure for shoes. After this had been done I offered him a glass of wine. He declined with a smile. I was surprised and asked if he was a temperance man. "Yes, sir." "Total abstainer?" "Yes." We rapidly came to an agreement. Every alcoholic who was improving was sent with an attendant to the shoemaker. With a touching self-sacrifice and with the greatest insight the poor man devoted himself to the patients. His recompense was their recovery. And for the first time in my life I saw drunkards recover, truly and lastingly cured. One day I said to Mr. Bosshardt: "Please explain to me how it is. I am paid by the State to cure these people, and I can not do it. You are the one who cures the drinkers, not I. Why can I not do it? I am deeply ashamed." He answered briefly with a smile: "It is very simple, Director; I am an abstainer and you are not. That is the secret. You can not teach others convincingly that which you do not do yourself."

From that day (1886) I became an abstainer. It is true I was afraid it might hurt my health, so deep were the roots of prejudice in my head, but the anticipated weakness and anæmia did not come. Instead of this, I lost my cardialgia within three months, and also within ten years traces of gravel promising gout and, after a while, my formerly frequent headaches. Mental and physical efficiency were increased in a manner not foreseen. The greatest mental over-exertions were stood with ease.

Since then I have published in a shorter time twice as many scientific and other papers as before, and have used every short leave of absence of four weeks for rapid journeys to tropical countries or into the mountains for the study of ants. I had periods of two years with hardly a day of rest. I never could have foreseen or believed that giving up two or three glasses of wine a day could strengthen me to such an extent, and yet it is literally true.

By such experiences my views on the alcohol question became thoroughly cleared. I had begun with the idea that I was making a sacrifice to the cure of my patients, but I soon began to realize that I, together with nearly

everybody in my country, had for thirty-eight years been the victim of a gigantic prejudice. The cure of the drinkers soon appeared as merely the first step, as the beginning of a great work of social reform. For what good is it after all to spend all the time and labor over the mending of ruins, broken down by other ill-advised people? No! the bull must be seized by the horns; the source of evil must be stopped. Abolition for all humanity of the consumption of alcohol in any form and concentration was the clear and unequivocal aim of the struggle.

Experience shows that in all countries where the alcoholic habit reigns it accounts for from one-half to three-fourths of the crimes, a great share of suicides, of mental disorders, of deaths, of diseases generally, of poverty, of vulgar depravity, of sexual excesses and venereal diseases and of dissolution of families. The worst feature, however, is the effect of the poison on the sexual glands of the drunkard which promotes the production of deformed progeny. Professor Hodge of Worcester, Mass., found in the progeny of artificially alcoholized dogs almost the same physical and mental degenerations which we have just described in man.

"But," you will say, "alcohol is poisonous in excessive amounts only. A moderate quantity of beer or wine will not do any harm; it promotes pleasant sociability. We do not care to forego this pleasure just on account of a few drunkards."

This question — what dose is harmless and not poisonous — demanded serious tests. As an answer we have the numerous experiments of Kraepelin, Smith, Fürer, Aschaffenburg. They are not refuted, and have found manifold corroboration. Doses of even 7-10-15 gm. ($\frac{1}{4}$-$\frac{1}{2}$ oz.) of alcohol, which correspond to a glass of wine or a pint of German beer (certainly a most moderate dose), are sufficient to paralyze, retard or disturb all the central and centripetal cerebral functions. The number of mistakes in calculation, setting type, memorizing, is increased. Sensibility is blunted, the reaction is retarded. The subjective consequence of the effect is agreeable; one feels heat, cold and pain less; one is less afraid, less accurate, less scrupulous. At the same time a very slight illusion spreads over reality, the first beginning of the later intoxication by higher doses. Hence, whenever alcohol promotes sociability and loosens the tongue, it is the consequence of a cerebral intoxication. Whenever the dose is too weak to produce this result, it also fails to have the desired effect. Hence, it is evident that the social effect of alcohol is pathological. It may, in Kraepelin's and Delbrück's words, rouse stupid crowds to talk. One needs only to study in Germany the "beer jokes," beer conversation and the beer literature. They have stifled in young Germany the idealism, the taste for the classics and the finer mental pleasures to an extent that makes one cry for help. Among the academic youth of Germany, the drinking of beer has truly killed the ideals and the ethics and has produced an incredible vulgarity.

Every drinker, one must remember, was moderate once and did not want to become a drunkard. And how many die of alcoholism of the heart, or of the liver, or of the kidneys without knowing it? I might mention here many of my best friends and really great minds. "The moderate drinkers are the unconscious seducers of the people," says v. Bunge very justly. When I mentioned this lately to an American scholar, he answered: "Oh, in America it is quite different. Only common people drink down their throats; decent people drink only occasionally very moderately. We believe in educating to a judicious self-control rather than in making the laws of an extremist." To this I answered: "That the drinking habit came into disuse with you is due just to those total abstainers and prohibitionists whom you attack so. But if you succeed in destroying their work, you will before long, with your 'moderate drinking,' introduce again the European drink habit in America, and the entire campaign may begin anew after you have given progress a set-back of from fifty to one hundred years." He had no answer to this.

Moderate drinking is the nursery of inebriety. It leads to social alcoholism with mathematical certainty because we can not change the human brain. There is no means of removing the alcohol plague, except by the abolition of the drinking habit. I know not of one sensible reason that would justify the moderate use of alcoholic beverages (and of other narcotic drugs like cocaine, hashish, opium, morphine, ether,) and on the other hand, know of innumerable scientific and social reasons which condemn the indulgence very stringently.

We have begun in Europe a scientific, social and hygienic campaign against the use of alcohol which makes encouraging progress. The United Kingdom Alliance, and the Union of Opponents of Alcohol among the educated, as well as the Independent Order of Good Templars among the people, work under this standard. The same is done by numerous teachers, physicians, students and college clubs in Great Britain, the Scandinavian countries, Germany, Holland and Switzerland. In France, too, the day begins to dawn under the powerful influence of Dr. Legrain. Yet we are just in the beginning.

What then can I say of America?

The country where Dr. Benjamin Rush first proved, about the beginning of the century,

that alcoholism is not a vice, but a disease depending on intoxication, was also the pioneer of the reform. After powerful struggles it has wrought great reforms, and has largely brought into discredit the habit of drinking at table and in good society. The closing of the saloons on Sunday, local option, asylums for drinkers, temperance legislation, instruction on temperance in schools, prohibitory laws in several States, are so many great steps of progress of which America may well be proud and to which the abstainers of Europe look with the greatest interest.

Nevertheless, the last few years have brought a certain relaxation, a certain malaise and cessation of effort, the causes of which I have tried to understand. I had for a long time felt that the men of official science, the teachers in American universities, are either indifferent or opposed to the movement. I made an effort to search for the reasons, and was astonished to find with most *a great ignorance of the alcohol question and of the social and individual effects of alcohol.* The threadbare arguments of our European opponents were presented to me everywhere, and I might have thought I heard the echo of my old colleagues of long ago in Germany; of independent and unprejudiced study of the question but little was to be heard. A scientific alcoholic movement independent of religion and politics is almost completely absent. This is a serious defect. The blame rests on the sin of omission of those who have a scientific education. On the other hand, there appeared very plainly the animosity against the kind of procedure of the religious women who direct the movement, and especially the fear of compromising one's scientific position by siding with such elements. The fear of compromising one's self is unscientific; it is a disgraceful human weakness. Science demands truth and does not ask where it comes from.

With gigantic steps and an unheard of spirit of enterprise, North America has formed a

TEMPERANCE EDUCATION MAP OF THE UNITED STATES AND TERRITORIES

States in White have a Temperance Education Law. Those in Black have NONE.

EXPLANATION OF MARKS.—× The cross signifies that Scientific Temperance is a mandatory study in public schools.

* The star signifies that this is a mandatory study and that a penalty is attached to the inforcing clause of this statute in the state or territory to which it is affixed.

† The dagger signifies that the study is not only mandatory but is required of all pupils in all schools.

‡ The double dagger signifies that the study is required of all pupils in all schools and is to be pursued with text-books in the hands of pupils able to read.

‖ The parallel indicates that the study is to be taught in the same manner and as thoroughly as other required branches.

§ The section mark indicates that text-books on this topic used in primary and intermediate schools must give one-fourth or one-fifth their space to temperance matter, and those used in high schools not less than twenty pages.

¶ The paragraph indicates that no teacher who has not passed a satisfactory examination in this subject is granted a certificate or authorized to teach.

〓 Three lines indicate that text-books on this topic shall give full and adequate space to temperance matter.

β The beta signifies that a definite number of lessons for each school year has been made compulsory.

There are 16,000,000 children of school age in the United States under Temperance Education Laws.

power unequaled in the history of mankind in the course of this century. A magnificent future undoubtedly is in store for her. Yet the inner machinery of such a thing can not fail to have its hooks and friction. A powerful stream of immigrants annually pours into the United States, at once opposed to and in need of temperance. Notwithstanding the remarkable and rapid power of assimilation of the American people, every single immigrant who brings with him all the prejudices and customs of his home, can not be Americanized in a day, especially if he finds there a colony of countrymen. The Irish in particular bring a large army of obstinate and passionate drinkers to America.

In another respect the Germans are almost as bad. On account of their assiduity and efficiency, they are well thought of; they are excellent aiders of civilization; but they usually represent the financial interests of the alcohol industry, especially the breweries, and they passionately take the side against abstinence. They even take drinking to be a kind of national distinction, as the faces of numerous German-Americans give shining testimony. The American knows how to polish the immigrant rapidly and how to teach him better manners; he ought to make him sober, even if he should be an "educated" German.

"Our school-room lies on the meadow wide,
Where under the clover the sunbeams hide,
And the daisies twinkle like fallen stars."

Alcohol dealers and producers are the enemies of the hygiene and morals of the people, and the destroyers of our race, whether they realize it or not. Their interests deserve no regard. They can and shall make a living in another manner. But it is the duty of every good citizen to set a good example, to become an abstainer, and through instruction and practical help to divert all the population more and more from the use of alcohol, and from the disgraceful degenerating drink habit. As long as one drinks, even one glass a month, he feels the irresistible need of excusing and defending that glass, and unconsciously one becomes an advocate of the alcohol habit. Public opinion must be educated in this sense, independent of politics and religion, in the rich and poor, the educated and uneducated, the Irish, the German and the Anglo-Saxon, the Catholic and Protestant.

I consider the anti-alcohol instruction in the schools indispensable, and its introduction in the United States means a great and powerful progress. With keen attention we follow in Europe the vacillations of the great alcohol reform in North America. *Noblesse oblige.* The Americans are the pioneers and leaders of the movement. To them is due the honor, but also the duty to be the first to bring this powerful social reform to a victory on which a great share of the future of our race and its civilization depends.

That new continent which is free from the prejudices of an Old World, which reveals the light springing from the confluence of races and ideas, and which has already produced so many great things, shall again in this field reap a lasting success. The progress of social hygiene should ripen as a fruit of the victories of scientific insight.

AUGUST FOREL, M.D., Ph.D., LL.D.
Professor of Psychiatry in the University of Zürich.
From a brochure reprinted from the *American Journal of Insanity*, Vol. LVII., No. 2, 1900.

SUMMER SONG

Misfortunes may press like a serried band,
And life may be full of pain,
But when Summer takes us by the hand,
There are smiling lips again.

Life's leaves, like a rose, may have dropped apart,
Its hopes be under our feet,
But when Summer takes us by the heart,
With joy do the pulses beat.

Are we grudging the birthdays as they roll?
Dread we this narrowing shore?
Ah! when Summer takes us by the soul,
It is Life forevermore!

CHARLOTTE FISKE BATES.

Primary Lessons

REVIEW WORK

THE OUTSIDE OF THE BODY

"To see to it I grow and gain and give."

THERE is a plant in the tropics which always faces the north. It can not be made to grow in any other direction, and travelers may direct their course by it as confidently as from a compass.

The earnest teacher is the same undeviating guide to her pupils. From month to month she studies their individual tendencies, and shapes instruction to their several needs, but always with one ideal in mind — the development of the child's threefold nature.

It is her constant care that every pupil grows and gains and gives; that his body rounds out into physical perfection as he gains in mental power, while the development of character which enables him to put his energies to good use keeps pace with both.

Now that review days have come, this underlying motive of the year should still be prominent. In primary classes the work in physiology deals mainly with the outside of the body. Call attention to the perfection to which this is carried in birds and animals; to their grace of movement, their beauty of form and coloring. Show why this is true; that it is because they live rightly; because their food is simple and fitted to their needs; because they breathe the fresh pure air; and because they exercise every limb, and go to bed early at night.

Help the little ones to think how far the same rules should apply to them, and point out how they as well as the birds can develop their possibilities. As warm weather approaches make freer use of story and poem to explain the truths you would bring out, and shorten all the lessons. Review questions on topics presented in the JOURNAL during the year, together with authoritative quotations relative to the effects of narcotics upon health and development, are given below. The questions will be found suggestive in summing up the primary work; the quotations are for the teachers use, and, if given to the children at all, should be restated in the simplest terms.

FIRST YEAR

What are some of the things which help us grow?

How do cigarettes hurt the growth?

Why do we need to stand and sit erect?

Why do children need to go to bed early?

What does food do for us?

Where do some of the different kinds of food we eat come from?

Name some of the grains which are good for food.

What are the best fruits to eat? Why should we take care to eat ripe fruit?

What foods help to make brain and muscle?

How should our food differ in summer and winter?

Why should beer not be used as a food?

Name the parts of the face.

What is the use of its different features?

Why should the face be kept clean?

How can we make our faces pleasant to look at?

AUTHORITATIVE QUOTATIONS

Alcohol retards, prevents, and is destructive in either large or small doses to normal growth and development; it lowers the working power. —PROFESSOR C. F. HODGE, Clark University.

Chemistry shows us that alcohol is not a tissue builder, containing none of the elements from which the tissues are made. Its use in health can not be of any value. It is true the grains from which it is made contain gluten and fibrin — elements of great importance in the development of the human system — but in the production of alcohol a chemic change is produced, so that there is nothing which the tissues of the body can appropriate to their use. —V. D. MILLER, M.D.

For the animal and human organism, alcohol is not both a food and a poison, but a poison only, which, like all other poisons, is an irritant when taken in small doses, while in larger ones it produces paralysis and death.—MAX KASSOWITZ, M. D., Professor in the University of Vienna.

Alcohol is not a food. It is in great part oxidized in the body, but it can not take the place of any of our necessary foods. —P. J. MÖBIUS, M. D., Leipsig.

Children who use tobacco have their growth interrupted, as nothing more definitely interferes with the equilibrium of the tissue-building, digestion, assimilation, elimination, and metabolism, than tobacco.—I. N. LOVE, M. D., before Miss. Valley Med. Ass'n.

Few things could be more pernicious to boys, growing youths, and persons of unformed constitution than the use of tobacco in any of its forms.—*Cope's Tobacco Plant.*

I know of no evil force so powerful, to-day, in sapping the bodily and mental strength of our boys, as the cigarette habit. Its results can be seen in the faces of those who use it, the moment one enters the classroom.—ROBERT MEADE, M. A., Inspector Public Schools, Brookville, Ont.

SECOND YEAR

How does wine differ from grape juice?

Why are wine and cider harmful drinks?

Why are home-made wines injurious?

Name the five senses. What do we learn through each?

How much could we know of what is going on about us if we had only the sense of hearing?

How can we help to make all our senses more acute?

Why should one always let tobacco alone if he wishes all his senses to remain keen and on the alert?

Describe the covering of the body.

What is the work of the skin?

How does the skin of birds differ from that of people? How is our skin unlike that of animals? that of a fish? an insect?

How should the skin be taken care of?

AUTHORITATIVE QUOTATIONS.

We may call the grape a noble gift of God. Wine certainly is not, for we never obtain this liquid from the grape except by using artificial means especially designed, by means of a process much resembling rotting, in co-operation with germs that have been added.—ADOLF FICK, M. D., Professor of Physiology, University of Würzburg.

The fermented liquors, especially wine and the strong varieties of beer, are in one respect more dangerous than the spirituous. Their influence is more gradual, more imperceptible, they are attractive because they seem to promote sociability, are lauded and sung by poets, and delude humanity the more because they insinuate themselves as indispensable friends.—AUGUST FOREL, M. D., LL.D., Professor of Mental Diseases, University of Zürich.

The poisonous element in all forms of intoxicating drinks, and the one so fraught with danger to the bodily tissues, is the alcohol they contain. The proportion of the alcoholic ingredient varies, being about 50% in brandy, whiskey, and rum, about 20% to 15% in wines, down to 5%, or less, in the various beers and cider; but whether the proportion of alcohol be more or less, the same element of danger is always present.—A. F. BLAISDELL, M.D., Boston.

The rapidity of thought, the clearness of memory, the capacity to reason, the power to control the will, are all measurable by instruments, and are all lowered by alcohol. We can accurately measure the action of alcohol on the senses, and on these alcohol is a paralyzant at all times.—*Journal of Inebriety.*

Cigarette smoking is perniciously prevalent among lads from eight years old and upwards. The evil is growing. There can not be two opinions as to the destruction of health and morals that follows its use by minors.—JOSEPH SANDERS, Secretary and Inspector Children's Aid Society, London, Ont.

The effects of cigarette smoking on the young and undeveloped system are certainly most injurious, affecting not only the mucous membranes of the nose, throat and lungs, but having its most injurious effect on the nerve centers.—W. O. LAMBLY, M. D., Cookshire, Que.

THIRD YEAR

Name some of the ways in which a boy's body differs from that of a dog. What are some of the uses of the upper limbs? the lower limbs? the head? the trunk?

What can we do to make our bodies tall and straight and strong?

How do alcoholic drinks hurt the growth?

Why should we let beer alone if we want to be strong?

Give three reasons why we need food.

Why should we eat at regular times?

Name a grain which makes a good food; a food which is good for the bones; a healthful starchy food; the best kind of meat.

Why should food be well chewed before being swallowed?

How may the stomach be injured?

What happens to our food after it has been taken into the stomach?

Why does a boy's first cigarette make him ill?

What is the great danger in smoking the first cigarette, or in drinking the first glass of beer or cider?

AUTHORITATIVE QUOTATIONS

Alcohol excites man, but does not strengthen him. It is no substitute for food, but takes away the taste for it.—*London Lancet.*

From the standpoint of race hygiene we must oppose with the utmost energy the use of alcohol as a beverage for children. If during this most important period of their development, so

Ready for Fun.*

far as their future is concerned, our youth are prohibited from using alcoholic drinks they will grow up mentally and physically more energetic. — RICHARD DEMME, M.D., Professor in University at Berne.

Contrary to the popular opinion, heavy work is not made easier by alcohol. The laborer who earns his livelihood by the exertion of his muscles destroys the source of his strength most effectually by the use of alcohol.—PROFESSOR KRAEPELIN, Heidelberg University.

It is claimed that alcohol aids digestion. On the contrary, it coagulates albuminous matter and thus renders it more difficult of absorption. By its action the sugary materials become with difficulty soluble. It retards or embarrasses digestive fermentation. It provokes nausea, indigestion, and causes the gastric catarrh that troubles all drinkers. —DR. DE VAUCLEROY, Professor of Hygiene in the Belgium Military School.

Strong drink and tobacco are at the root of much of our country's disease, and not until such habits are given up can we ever expect to find a race of strong healthy men and women. — G. B. MCKENDRICK, M.D.

You will find that cigarette-smoking youths have impaired digestion, small and poor muscles, irritable tempers, and a lack of capacity for sustained effort of any kind, and I believe that you will find that they do not succeed in life. The men who win are men of strong physique.— T. H. MARABLE, M.D.

The cigarette is the bane of our youth, and has, to my knowledge, done immense evil by sapping the vitality of our boys, beclouding their minds, and making them totally incapable of exercising their natural energy. — F. L. MITCHELL, M.A., Public School Inspector, Lanark County, Ont.

Even the smallest amount of smoking is hurtful, as it often produces nervous functional diseases of the stomach, debility and irregular action of the heart, impaired vision and irritation of the throat, sometimes called "smoker's sore throat."—THOMAS CHRISTIE, M. D., M. P.

That the cigarette is a deadly poison is susceptible of the most positive scientific proof. A few months ago I had all the nicotine removed from a cigarette, making a solution of it. I injected half the quantity into a frog, with the effect that the frog died almost instantly. The other half was administered to another frog with like effect. Both frogs were full grown and of average size. The conclusion is evident that a single cigarette contains poison enough to kill two frogs. A boy who smokes twenty cigarettes a day has inhaled enough poison to kill forty frogs. Why does the poison not kill him? It does kill him. If not immediately, he will die sooner or later of weak heart, Bright's disease, or some other malady which scientific physicians everywhere now recognize as the natural results of chronic nicotine poisoning. — J. H. KELLOGG, M. D., Superintendent Battle Creek Sanitarium, Michigan.

"Father calls me William,
Sister calls me Will,
Mother calls me Willie,
Brother calls me Bill" †

The use of the cigarette by the young weakens the general vitality and thus dwarfs the stature and lessens the storing of reserved strength. Such results are especially serious in the growing time of life. It seriously unfits for the strains which come upon body and mind in the competition of business and the obligations of home. — A. C. COURTICE, D. D., Toronto, Ont.

* Courtesy of the *Inland Printer*.

† Courtesy of the *Educational Gazette*.

REVIEW LESSONS

THE INSIDE OF THE BODY

ACCORDING to the legend of ancient Troy, the city could not be taken so long as a certain statue of Pallas Athena, the goddess of Wisdom, remained within its walls.

For ten years Troy was besieged from without and the attacking armies exhausted every device of war to no purpose. But hardly had their sacred Palladium been removed from within the city, by a clever strategy of the enemy, before the wisdom it personified went with it. The Trojans straightway voted to bring within their gates the mysterious wooden horse, little dreaming that by this act they were voluntarily admitting the enemy they had so long held at bay.

The story is not without its modern significance. The youth besieged by constant temptation to indulge in beer and cigarettes is safe from their attacks so long as he keeps in mind a knowledge of their harmful effects and refuses to allow these substances to enter the citadel of his body. They can not injure him from without. But the moment he is beguiled by their apparent harmlessness into a single indulgence, he has admitted into his system an enemy whose power he can not measure.

It is the teacher's duty as a law-abiding citizen to instruct her pupils in the treacherous nature of all alcoholic drinks and narcotics; it is her privilege as a lover of humanity to impart this instruction so skilfully that the child will be won by it to continued right living.

During the primary years all work in hygiene deals largely with the external parts of the body. But as the pupil passes up through the grades he learns that health and strength come from within as well as from without; that if the brain is dulled or the heart weakened by smoking cigarettes, no amount of external training will make good the loss.

Let this be the leading thought in summing up the year's work in intermediate classes—the care of the body within. Not merely the processes of digestion or respiration or circulation, but the larger idea that these are life processes, and that their health and vigor are to determine the child's ability in whatever direction he maps out for himself. Questions and scientific quotations along this line, based upon the JOURNAL lessons given during the year for these grades, are subjoined.

FOURTH YEAR

How do the different shapes of the teeth fit them for their work?

What are the teeth made of? What kinds of food do they need to keep them in good condition?

How does tobacco spoil the looks of the teeth?

What organs of the body are overworked when alcohol has been taken?

How does alcohol injure the blood?

How is the work of the blood interfered with by the presence of alcohol?

What is the effect of alcohol upon the heart?

Why are drinking people more liable to disease than abstainers?

Why can one do more work if he does not touch alcohol in any form?

How does the use of tobacco impair muscular force?

Why is the cigarette smoker so often pale and listless?

What proof of the harmfulness of cigarettes is found in the refusal of business men to employ boys who use them?

What is the name of the poison in tobacco?

AUTHORITATIVE QUOTATIONS

Nobody can smoke or chew tobacco, or drink any kind of liquor without spoiling the teeth. There is no way in which tobacco can be used that does not make the teeth yellow. Besides it helps to ruin them. — VICTOR C. BELL, M.D., D.D.S.

The elimination of half an ounce of alcohol requires the expenditure of enough vital force to perform a day's work. The heart must beat faster, the lungs work harder, arterial tension is lowered, and all the organs flooded with blood which they do not need, but which stimulates them to unnecessary work. — *Medical Brief.*

Alcohol poisons the blood, weakens the brain, robs man of many of life's comforts and joys, and may at last destroy his soul. It is well that the children be taught these things.

— *Medical Temperance Review.*

When considerable quantities of beer and wine are taken frequently, it is not merely the alcohol in these beverages that is injurious, but also the temporary overfilling of the blood vessels, because that entire stream of fluids is

obliged to pass through the blood. All of that superfluity has to be equalized by means of increased action of the heart. — F. von Birch-Hirschfeld, M. D., Professor of Pathology, Leipsig.

The liabilities to sickness are greater among drinking men than among abstainers, because alcohol weakens the vitality, lessens the power of resistance, and renders the body more susceptible to disease. — A. Baer, M.D., Royal Sanitary Commissioner of Berlin.

The disadvantageous effect of alcohol on persons performing muscular work is well known, and it has been proved from the records of military expeditions that the best physical results are obtained under total abstinence from alcohol. The evidence, therefore, is overwhelming that alcohol in small amounts has a most deleterious effect on voluntary muscular work.— Victor Horsley, M.D., F.R.S.

Tobacco in any form impairs muscular force, and produces heart failure. Nineteen per cent. of heart failures among men can be traced to nicotine poison. In each decade of years the number increases because the resisting power becomes less.— Charles H. St. John, Ph. B., D.D.

"Feet that creeping slow to school
Go storming out to playing."

After he has been smoking for some time, the blood of the smoker is found on examination to be thinner and paler. Bleeding from a cut surface is difficult to stop. The red blood corpuscles are very much changed. Their number and their oxygen-carrying power is diminished. They lose their power of clinging together and lie scattered about. Tobacco exhausts the vitality of the user.—W. H. Riley, M.D., Supt. Colo. Sanitarium.

FIFTH AND SIXTH YEARS

What proof is there that alcohol is a narcotic rather than a stimulant?

In what ways is the water drinker better off than one who drinks beer or some other alcoholic liquor?

What advantage in muscular power do abstainers have over those who drink?

How does tobacco lessen the strength of the body?

Why does one feel warmer after alcohol has been taken into the body?

How is this feeling of warmth deceptive?

Why is the drinking man frequently unable to think coherently? Why does he often say and do foolish things?

How does the use of alcohol affect the memory?

Why does the use of tobacco so often cause color blindness?

What is the general effect of nicotine upon the sensory nerves?

Why do other bad habits usually go hand in hand with cigarette smoking?

AUTHORITATIVE QUOTATIONS

Alcohol, after a most careful physiological investigation, has been declared to be not a stimulant but an anesthetic, a depressing and paralyzing agent under all circumstances. It lowers the temperature and the pulse-rate, diminishes the senses, lessens the muscular strength, impairs the memory, slows all the brain functions, and brings them below their normal acuteness. It diminishes the power of reason and judgment. —I. D. Mishoff, M.D., Milwaukee.

The great advantage of the water-drinker, as compared with the alcoholist, under work, is this: He has the same strength, with greater self-control. He is ready to stop, when necessity requires that he should, and runs less risk, consequently, of injury by excessive strain. He does not expend a temporary energy at the expense of future exhaustion. He does not avail himself of a doubtful and deceitful help, at the cost of deterioration of the blood, and consequent danger to health and life. He does his work at least as copiously and as well as the other even for a time; and in long continu-

ance of labor, he has the whip-hand of him quite. He obtains his desired ends in all respects satisfactorily. There is no lassitude, headache, feverishness, foul tongue, or aching limbs next day—even after the hardest labor. All is fresh, and supple, and free. Reaction is real; blemished by no fever; and not falling suddenly and treacherously away. "I have backed as many as sixty tons a day, with perfect ease," says a London coal-whipper, "since I took the pledge. But before, I could scarcely have been able to crawl home; certain to have lost the next day's work."—JAMES MILLER, M.D., F.R.S.E.

The influence of alcohol upon muscular work has been established experimentally; it has been demonstrated that man works better when he does not use this pretended stimulant. The physiological experiments of Destrée have established that alcohol is a paralyzer of muscular work. It excites at first, but this excitation is altogether transient and is followed immediately by depression.— DR. DE VAUCLEROY, Professor of Hygiene in the Military School of Belgium.

Though tobacco is less destructive than alcohol, still, whether it is smoked or chewed, it has an extremely harmful effect upon men who are engaged in severe physical exertion, and not least so when the supply of food is not abundant. Tobacco lessens the strength of the body, and reduces nervous power, capacity for endurance and tenacity of purpose.—*The Medical Pioneer.*

There is no poison that has a greater destroying power upon the sensory nerves than nicotine. Tobacco in any form produces amaurosis, which is a loss or decay of sight without the visible defect in the eye; in brief, it destroys the optic nerve, producing color blindness.

—CHAS. H. ST. JOHN, Ph.B.,D.D.

The use of cigarettes affects the nervous system, weakens the will power and destroys the ability of the boy to resist temptation, and because of this he easily falls a victim to those habits which not only destroy the body, mind and soul, but irresistibly lead him into a violation of the laws of his state.—HON. GEO. TORRENCE, Gen. Supt. Ill. State Reformatory.

Experiments carried out by Dr. W. P. Lombard of the University of Michigan have shown that in from five to ten minutes after beginning to smoke an ordinary cigar muscular power began to diminish, and in an hour, when the cigar was burnt, it had fallen to about twenty-five per cent. of its initial value. The total work of the time of depression, compared with a similar period, was 24.2 to 44.8.—J. W. SEAVER, A.M., M.D.

Little Barefoot.

VACATION

I have closed my books, and hidden my slate,
And thrown my satchel across the gate.
My school is out for a season of rest,
And now for the schoolroom I love the best;

My schoolroom lies on the meadow wide,
Where under the clover the sunbeams hide,
Where the long vines cling to the mossy bars,
And the daisies twinkle like fallen stars;

Where clusters of buttercups gild the scene,
Like showers of gold-dust thrown over the green,
And the winds' flying footsteps are traced, as they pass,
By the dance of the sorrel and dip of the grass.

My lessons are written in clouds and trees,
And no one whispers, except the breeze,
Who sometimes blows, from a secret place,
A stray, sweet blossom against my face.

My school bell rings in the rippling stream,
Which hides itself, like a school-boy's dream,
Under the shadow and out of sight,
But laughing still for its own delight.

My schoolmates there are the birds and bees,
And the saucy squirrel, more dull than these,
For he only learns, in all the weeks,
How many chestnuts will fill his cheeks.

My teacher is patient, and never yet
A lesson of hers did I once forget;
For wonderful lore do her lips impart,
And all her lessons are learned by heart.

O, come! O, come! or we shall be late,
And autumn will fasten the golden gate.

KATHERINE LEE BATES.

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" O zephyr, queen of the dreamy south,
Breathe on the bud of the hawthorne tree;
Kiss to blushes the tulip's mouth,
And the clover red for the bee.
Scatter the mist till it falls below
On the seed of the ripened pod,
And a million blooms shall spring and grow
In the summer fields of God!"

THE REPUBLIC'S APPEAL TO THE MEN IN ITS UNIVERSITIES

WHEN the history is written of the results to mankind which have followed the investigations and discoveries of the past twenty years, none will appear so far reaching and beneficent as those which have followed the search after the real nature and effects of alcohol and other narcotics, beginning with the work of Carpenter and Richardson and coming to the great scientists of the present. The undeniable results of those researches do not support the fallacies that have led to the drink habit. Among them are the facts that alcohol is a protoplasmic poison causing the breaking down of body tissues and the loss of nitrogen, shown by Miura, August Smith, Keller who worked under Bunge, Rosemann in the German universities and others. The fact that alcohol diminishes ability for mental and muscular work has been demonstrated by Fürer of Zürich, Destrée of Brussels, and Kraepelin and his pupils in Heidelberg.

This scientific research confirms the utterances of such men as Professor Kassowitz who says that alcohol is not both a food and a poison, but a poison only; and Professor Horsley of University College, London, who says that total abstinence has a scientific basis. The discoveries of these and kindred truths are destined to deliver mankind from the slavery of alcohol. Shall that deliverance be a speedy one, or must long periods of time elapse before the truth gets to the people while individuals and nations go out of life to swell the unnumbered hosts of victims of alcohol bondage? This question has vital interest for no nation more than ours. True, we have almost universal public school scientific temperance instruction; we are teaching the findings of science to the children of this land, and are rejoicing in the results. But if we are to retain that teaching there is need here of the same impartial, honest, scientific investigation on the alcohol question that is going on in Europe.

The great scientist, August Forel, M.D., Professor of Psychiatry in Zürich, says of the situation in our country in an article on other pages of this magazine:

"We have begun in Europe a scientific, social and hygienic campaign against the use of alcohol, which makes encouraging progress. What can I say of America? After powerful struggles it has wrought great temperance reforms, among them, instruction on temperance in schools. These reforms are so many great steps of progress and conquests of which America may well be proud, and to which the abstainers of Europe look with the greatest interest. Nevertheless, the last few years have brought a certain relaxation, a certain malaise and a certain cessation of effort, the cause of which I have tried to understand.

"I found when in America that the men of official science, the teachers of American universities, are either indifferent or opposed to the movement. I therefore made an effort to search for the reasons, and was astonished to find with most *a great ignorance of the alcohol question and of the social and individual effects of alcohol.* The threadbare arguments of our European opponents were presented to me everywhere, and I might have thought I heard the echo of my old colleagues of long ago in Germany. Of independent and unprejudiced study of the question but little was to be heard.

"In the United States a scientific alcoholic movement independent of religion and politics is almost completely absent. This a serious defect. *The blame rests on the sin of omission of those who have a scientific education.*

"With gigantic steps and an unheard of brave spirit of enterprise, North America has formed a power unequalled in the history of mankind in the course of this century. A magnificent future undoubtedly is in store for her.

"I consider the anti-alcohol instruction in the schools indispensable, and its introduction in the United States means a great and powerful progress. With keen attention we follow in Europe the vacillations of the great alcohol reform in North America. *Noblesse oblige.* The Americans are the pioneers and leaders of the movement. To them is due the honor, but also the duty, to be the first to bring that powerful social reform to a victory on which a great share of the future of our race and its civilization depends."

These criticisms of Professor Forel do not apply to-day to the physicians of America as a

whole, judging by their publications. Repeated and exhaustive articles exposing the fallacies of Professor Atwater's claim for a food value for alcohol, published in the leading medical journals of the country, have shown study, knowledge and a keen interest in the scientific and social aspects of the alcohol question on the part of their many writers.

Unfortunately, we have no evidence of a like knowledge or interest, but the opposite, on the part of non-medical university men. We wish we could point to evidence that denies Professor Forel's charge that "In America the men of official science, the teachers of the universities, are either indifferent or opposed to the temperance movement;" that they show "a great ignorance of the social and individual effects of alcohol;" that "In the United States a scientific anti-alcoholic movement in the universities is almost completely absent;" and that "the blame for this rests on the sin of omission of those who have a scientific education."

We wish this could be truthfully denied, we believe it can be in some colleges Professor Forel did not visit, but we must admit that in many cases it is all too true. We who are leading the world in so many other things are sadly behind in this. It is what European rather than American science has revealed that, put into our indorsed books, is being taught in our public schools to-day, and we have to agree with Dr. Forel that much of it is beyond the knowledge of many of our university men who nevertheless think they know all there is to be known on the subject. The man who knows officially about many things for which he has a just reputation, but who has "great ignorance" about another important subject which he thinks he knows all about is a source of great danger on that subject.

We have always said that whether he be a worker on a farm, or in the shop, or a trainer of brains in the university, the American is the knightliest of men, that his chivalry for woman is the most chivalrous in the world, that his manly helpfulness can always be depended upon. What a shock to this confidence in our brothers is this assurance of Dr. Forel, that he found in this country among university men no "independent, unprejudiced study" of the alcohol question, but an evident "animosity against the kind of procedure of the religious women who direct the movement, and especially the fear of compromising one's scientific position by siding with such elements."

Dr. Forel does not tell us whether he discovered what the the procedure on our part is to which objection is made. We are consequently left in doubt as to whether or not it is because we are "religious." After praying a great deal, asking God to show us what to do to stop this great evil, and to help us in so doing, we have gone to the legislatures and asked that physiological temperance be made a compulsory public school study for all the future men and women of this country; then have imported the works of science on alcohol from Europe; have had them translated; have urged authors and publishers to put their teachings into good text-books; have secured their use, and have paid no attention to the false accusation that our motives are mercenary; have with a single eye kept steadily on caring first, most, and all the time only to save the child, yea, all the children. This has been our procedure. We are sorry it is not approved, but we make no apology for it. Does the scientific temperance instruction movement lack the favor of university men because we, its authors, are women, and it did not start in the universities with men? That would be too un-American to be thinkable. The men of this country believe in woman and welcome her work for morals and education. Gladly would we have left the initiation and advocacy of this work to the strong men in our halls of learning; but they left it undone, and the peril was great and might reach any mother's child in the land. While we were waiting, the time to educate succeeding generations of children was passing never to return. We could not delay, and we respectfully remind this class of America's instructors of Dr. Forel's words, "Science demands truth and does not ask where it comes from. The fear of compromising one's self is unscientific; it is a disgraceful human weakness."

The American university man, although he may for a time be prejudiced because misinformed, is after all fair and open to reason. Study of the question will yet make him the friend of the temperance cause, and for that study we plead. The people believe in a university teacher. "He has been to college," they say, "and more, he teaches in a college, and of course knows" all about everything.

Such a man is doing a great wrong when he says as one did recently in a light, careless way, "Oh, those temperance text-books that are studied in the public schools are not accurate," and then was obliged to admit that he had never examined one book of the kind he criticised in such a nonchalant manner, and that his opinion was based on hearsay. A professor in a certain college tried to impress his point before a legislative committee by criticising, as if it was what is now indorsed, an old edition of a text-book on this subject written seventeen years ago and long since revised to be abreast with the progress science has made in that time. The same professor, later in a public address, objected to the introduction of "harrowing pathological details" into primary classes, as though this study required such. This very

criticism showed that this professor either had never examined the lessons in hygiene prepared for primary pupils, or that he was not candid; we must believe the former.

This class of men who, as Dr. Forel has shown, do not know but who think they know, and who thrust their uninformed opinions upon the public backed by their official position, are, we repeat, a grave peril to the cause of total abstinence in our country to-day.

Why should not the people expect that our institutions of advanced learning should study the alcohol question with all the impartial, unprejudiced throughness that is devoted to that investigation in some of the universities of Europe? These institutions have been endowed by the people; to them they send their children to receive the highest educational advantages our country affords. Why should they not expect that the professors from our colleges who attempt to speak for public school education on this subject should do so from knowledge and not from prejudice based on hearsay?

The total abstinence movement, which in Europe began in the universities, started in this country with the people, but that is no barrier. This is the people's country and the scholar is not set apart by his education; he is only one of the people who has given more time to study that he may the better serve his country and his countrymen. His country calls now for this study, and for the defense of his knowledge against the alcohol slavery that has destroyed so many of its citizens. No true American ever turns a deaf ear to a summons from the republic, whether it is a call to face the cannon's mouth or for what takes more real courage, to pioneer a new and unwelcome truth. Cowards are not born of the ozone of our lofty hills and broad prairies, and the recruits from our universities and colleges will not, we believe, be wanting to lend the zeal of young life and knowledge for the overthrow of America's most dangerous slavery, that of her sons to alcohol, which Professor Forel aptly calls "the poison of nations."

MARY H. HUNT.

Sir Evelyn Wood says, in a recent report on the Aldershot manœuvres, that there was less smoking in the ranks on the line of march than in the previous year, with the resulting advantage that fewer men fell out.—*London Lancet.*

"O joy to be out in June, to be out alert and free!
For life is a precious boon with the world in harmony."

HER ROYAL LITTLENESS

Just a tiny morsel,
Delicately sweet
From her golden halo
To her little feet.

She is fair and dainty,
Eyes of bluest blue,
Hands of pinkest wax-work,
(Nothing much to do.)

Ears too small for hearing,
Mouth a sweet, wild rose,
Cheeks that steal our kisses,
Very saucy nose.

* * *

She's such a little woman!
Perhaps it's better so,
She creeps into the coldest heart,
And keeps it warm, you know.

MYRA HUMMEL BUDD.

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BOOK NOTICES

OUR TEETH: HOW TO PRESERVE THEM, by Victor C. Bell, M.D., D.D.S., Young America Publishing Company, New York.

Beginning with the baby's first tooth, this little book sketches the history of the teeth to adult life and gives excellent hints as to their care. The need of perfect cleanliness is well brought out, and the chapters on food and eating are full of information. The book is a skilful adaptation for primary pupils of "Popular Essays on the care of the Teeth and Mouth," and has been prepared under the author's personal supervision by a successful teacher. It is to be hoped that this experiment may be followed by other books of the same character dealing more fully with the subject for the information of advanced grades of pupils.

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THE PRATT INSTITUTE MONTHLY for April gives a thoughtful discussion of the functions of the secondary school. Its great mission is to discover the special aptitude of the pupil and fit him to use his talents for the well being of the community as well as for his own development. To this end his constructive ability must be trained and at the same time health and character must be given careful consideration.

The fallacious feelings of ease, warmth and comfort, which cause the unwise, excessive eater to think that alcohol has aided the digestion of the mass within, are mainly deceptive feelings due to the benumbing influence of the anesthetic poison in deadening the uneasiness and pain of indigestion.

—NORMAN KERR, M.D., F.L.S.

It takes longer for a person to think who has had a small quantity of alcohol.—VICTOR HORSLEY, M.D., Professor of Chirurgy, London University.

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